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AIMS

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S. MARIA DELLA SALUTE: SCENOGRAPHIC ARCHITECTURE AND THE VENETIAN BAROQUE

RUDOLF WITTKOWER

S. MARIA DELLA SALUTE is one of the best known buildings in the world and a paper dedicated to it may therefore meet with a certain amount of reserve. What new observations, if any, can be made about such a structure? The simple answer is that we are going to move into virgin territory, barred from historical analysis by the warning: "Trespassing into the area of picturesque architecture undesirable!" I think it is due to an ingrained pattern of thought stemming from the late eighteenth century that we shrink from analyzing rationally what is generically labelled as "picturesque." We seem to assume that the imaginative, dazzling, colourful, swaggering, and richly orchestrated—the picturesque in the widest sense—is incompatible with analytical inquiry. But surely, every mental and creative process has its own laws which may be laid open by careful investigation, and this is precisely what I want to do.

Longhena approached his task, as every resourceful architect does, by seeking to strike a balance between a variety of partly contradictory aspects. He had to master the difficult problem dictated by the urban landscape (or should one say seascape?). A striking and widely visible monumental building had to crown the tip of the island between the Canale della Giudecca and the Canal Grande, at the point where the two merge into the broad Canale di S. Marco. At the same time, this building, to rise in the centre of a semicircle with St. Mark's and Palladio's S. Giorgio Maggiore and Redentore at about equal distances on the periphery, had to blend with these historic sites. He had to reconcile his design for the restricted area at his disposal not only with the request for monumentality but also with a number of clearly specified requirements. Moreover, though monumentality was checked by technical problems peculiar to the soil of Venice, it was imperative to go to the limits of the technically possible. Further, in accordance with an old tradition (now unfortunately gone out of fashion), Longhena felt the need of suggesting through his design a distinct symbolic concept.

For his planning he was at liberty to choose from the repertory of motifs and forms accessible to him at this particular moment and inside the perimeter of the Italian tradition. One might say that a good project would lie at the intersection of the various exigencies I have mentioned, but a great project would be one where the special conditions and limitations stimulate a catharsis of thought in terms of the current formal grammar and lead to a conceptual design of convincing finality and originality. I claim that Longhena's Salute belongs to the latter category, and it is for this reason that I shall mainly deal with the conceptual design and its sources.

The circumstances of the commission are well known to us.[1] In 1630 the population of Venice was decimated by a frightful plague. A few months after its beginning, on 22 October 1630, the Senate decided to erect as an *ex voto* a church dedicated to the Virgin and to call it *S. Maria della Salute* ("Salute" has the double meaning of Health and Salvation). Three senators were chosen to form a commission for the purpose of selecting the site and recommending a project. They decided upon the present site on which stood the Seminary of the Somascian Order.

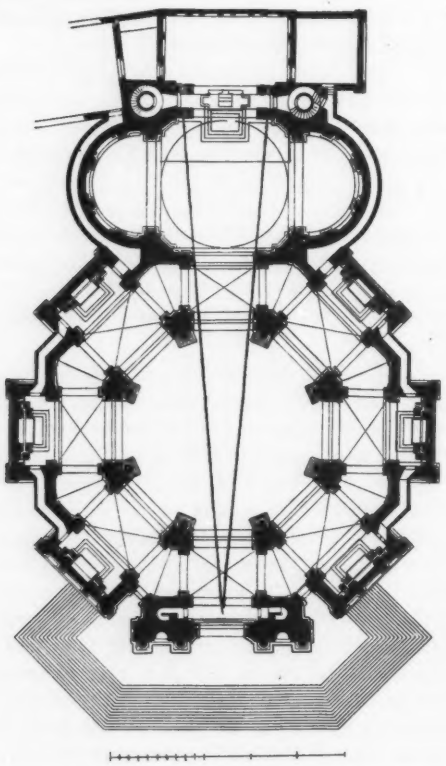
In January 1631 the demolition of the older buildings was begun and on 25 March, the day of the Annunciation (which is the legendary day of the foundation of Venice), was to take place the laying of the foundation stone of the new church. This happened, in fact, a week later (on 1 April), and on this occasion medals were put into the foundation with the inscription *unde origo inde salus*[2] (whence the origin, thence health and salvation) referring to the origin of Venice under the Virgin's tutelage. In spite of these preliminary steps, a design had not yet been selected. Meanwhile the commission of three had been increased to eight and in June 1631 they recommended two of eleven competing projects to the Senate, the one by Longhena, the other by the little known Antonio Fracao and Zambattista Rubertini. The recommendation was ac-

RUDOLF WITTKOWER, *late of the University of London, has recently joined the Columbia University faculty.* *This paper was read at the Annual Dinner of the Society of Architectural Historians and the College Art Association, January 25, 1957, in Detroit.*

companied by a long memorandum which summarized the conditions of the competition. Three specific conditions had to be fulfilled by the architects, (1) that from the entrance of the church it should be possible to embrace unobstructed the whole ample space of the building, (2) that there should be an even distribution of bright light, and (3) that the high altar should dominate the view from the entrance, while the other altars should come into full view as one proceeded in the direction of the high altar. To these special points, others, no less essential but of a more general nature, were added: the building had to harmonize with the site and had to make a grand impression, in spite of the fact that sufficient ground had to be left for the erection of a monastery and that the expense should remain within reasonable limits.

It is evidently a time-honoured and perfectly justifiable practice to squeeze the last ounce out of the competing architects. No wonder that only two of the eleven projects were worth considering: Longhena's centralized—i.e., central-plan—church (Figs. 1, 2) which the report described as pleasing and new at Venice, and Fracao's longitudinal design which recommended itself by good distribution, good lighting and spaciousness. Unable to come to a decision, the committee handed the responsibility back to the Senate, the members of which had sufficient wisdom and taste to vote almost unanimously for Longhena. This was by no means a foregone conclusion, however, for the commission felt in honour bound to draw attention to certain baffling features of Longhena's design. Their view was based on the opinion of experts, one of whom had made the following point: the opening between the pillars of the Octagon (and also of the chapels) is 18 feet,[3] but the width of the ambulatory is only 15 feet. The arches in the ambulatory would, therefore, be lower than those between the pillars—and this is at variance with symmetry. It would be necessary (the expert claimed) to make the ambulatory 18 feet wide. He argued, moreover, that from a technical point of view the Octagon with its dome would not be sufficiently supported by an ambulatory of the suggested width. He also thought that for the external appearance the height of the ambulatory should be raised 5 feet. The over-all width of Longhena's design was just inside the permissible limits. By incorporating the expert's recommendation, the area of the church would have to be enlarged. This was impossible, since the building would come too close to the canal running along its side. The impasse seemed almost insoluble.[4] But Longhena carried his point. He was a better technician than the expert, for his ambulatory remained 15 feet and the church stands as firm as a rock. The offence against symmetry did not worry him, for we shall find that the low arches in the ambulatory belong to an optically neutralized area, and the irregularity has therefore remained unnoticed throughout the ages. As regards the exterior (Fig. 3), he had good reasons to keep the ambulatory wall low, but he increased the impression of height by the magnificent scrolls which form optically part of the body of the church.

FIG. 1. S. Maria della Salute, Venice. Plan, with visual lines added.



Longhena's difficulties arose because he insisted on the unorthodox octagon with ambulatory. We shall soon find out why this plan was so important to him that he was prepared to face and overcome any conceivable obstacle. He himself stressed in two memoranda the unprecedented character of the plan, and all the participants in the competition seem to have shared this opinion. A centralized building with ambulatory is rather rare in Renaissance and post-Renaissance architecture. The type is of late antique ancestry (an example is S. Costanza in Rome) and occurs frequently in medieval, particularly Byzantine, baptistries and churches. S. Vitale at Ravenna immediately comes to mind. The reason why octagons (or for that matter any centralized plan) with ambulatory were almost excluded from Renaissance planning is fairly evident. The ambulatory makes it impossible to produce a design with entirely regular shapes. How did Longhena deal with this problem? Had he done the obvious thing and given the

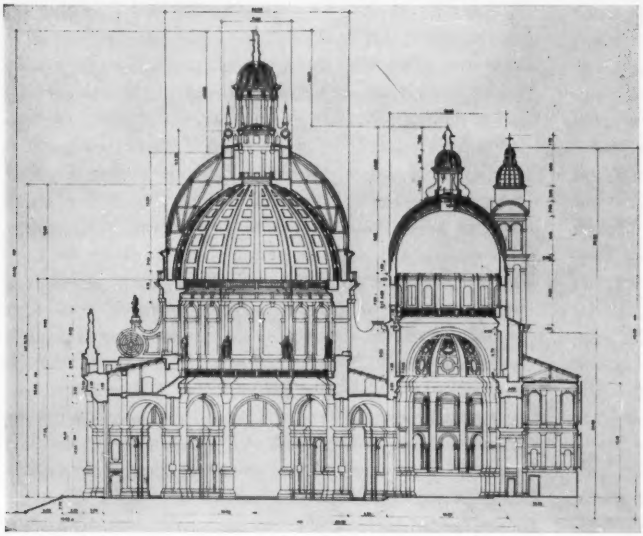


Fig. 2. S. Maria della Salute, Venice. Longitudinal section. (*L'Architettura*, 1955)

piers of the octagon a trapezoid form determined by the radii from the centre, it would have led to alternating large and small trapezoid units in the ambulatory, to trapezoid chapels and acute angles at the meeting points of the chapel walls and the octagon outside. His solution, to make the sides of two consecutive pillars parallel to each other, was not new; the architect of S. Vitale, for instance, had used it, but he did not exploit the device for the organization of his shapeless ambulatory. Longhena's plan, by contrast, being in the Renaissance tradition, is consistent throughout, and it is precisely this device that made it possible to give the visually important units of the ambulatory as well as the chapels regular geometrical shapes. It is due to this arrangement that across the octagon the openings between the pillars and not the sides of the pillars correspond. But Longhena also incorporated in the design radial relationships. The radii not only determine the angles of the octagon and the broken faces of the piers (which is obvious), but also the bases of the columns inside the octagon, so that here it is solid form and not space that corresponds across the octagon. Thus, for the view from the centre, each unit of pillar and column has two different functions which I may call space-limiting (the sides of the pillars) and space-absorbing (the columns with their bases). The meaning of Longhena's complex design is revealed when one stands in the centre of the octagon. The columns on their pedestals push forward into the central space and, since one is more or less consciously aware of their radial arrangement, they suggest rotation or, better, they support the enclosed centralized character of the octagon. The opposite is true of the small order of the piers: they face sideways, carry the arches of the octagon and link up with the corresponding order of the chapels; they therefore frame the vistas radiating from the central space.

This leads me to the most important point. Whichever way one looks from the centre, entirely homogeneous perspectives open (Fig. 4). The arch of the octagon, the arch of the chapel and of the mullioned window appear one set into the other, and even the altar pediment is a segment with the same radius. You see what I mean by scenographic architecture. It is now also evident that the oddly shaped sections of the ambulatory behind the pillars and between the two chapels are visually as good as non-

Fig. 3. S. Maria della Salute, Venice. Exterior. (Alinari)

existent, and that Longhena knew what he was doing when he refused to respond to criticism. His passionate interest in determining the beholder's field of vision is surely one of the factors which made Longhena choose the problematical octagon with ambulatory instead of one of the more traditional Renaissance centralized designs. I cannot emphasize too strongly that this is the only type of plan which allows one to see only carefully integrated views and where the eye is not given a chance to wander off and make conquests of its own. In one of his memoranda Longhena himself points out that from the centre of the church one can enjoy the full view of all the chapels and altars.[5] He thus fulfilled in a precise and unexpected way the stipulation that all the altars should come into view as one walks into the church. Indeed, they are all visible from the same point from where no other distracting views are possible (apart from that towards the high altar).

When deciding on a central design, Longhena was, of course, guided by a variety of considerations. He knew, for instance, that a centralized church looks larger than it is (which was an important aspect under prevailing conditions), and this point was mentioned in his favour in the memorandum of the committee. Although we cannot prove it, he was probably also aware that only a centralized project established an ideal—if almost intangible—relationship to the arc of great churches which I have mentioned. But, in addition, the central scheme meant to him something quite different. It was for him the symbol of a sublime mystery. I give you his own words: "The mystery contained in the dedication of this church to the Blessed Virgin," he writes, "made me think, with what little talent God has bestowed on me, of building the church in *forma rotonda*, i.e., in the shape of a crown."[6] I think we may presume that the crown here is not simply a generic reference to the Queen of Heaven of the Venetian litany which was recited during the processions at the times of plagues,[7] but that Longhena thought more specifically of the crown of stars of which the twelfth chapter of *Revelation* speaks: "a woman clothed with the sun, and the moon under her feet, and upon her head a crown of twelve stars." This concept is made quite explicit by the large figure of the *Immaculata* with the crown of stars raised high above the building (Fig. 3). Moreover, the Apostles, who were always regarded as the Virgin's companions and since the time of St. Augustine have been symbolized in the twelve stars of her crown,[8] appear as large figures under the dome, below the area where the octagon is transformed into the round. The mystery—it may be concluded—finds its human-made echo in the perfect symmetry of the 'crown-shaped' building as well as in the contrast between the octagon—the realm of the Apostles—and the sphere inside, and that between the bizarre scroll-brackets—the realm of the Patriarchs—and the calm silhouette of the dome outside, the old symbol of the dome of Heaven. Longhena, incidentally, stands in a long tradition, for it is due to the symbolic reference to the crown of stars of the *Immaculata* that so many sanctuaries and churches dedicated to the Virgin are centralized buildings.[9]

Similarly, in spite of the novelty of his design, his formal language is firmly based on precedent. In a hundred direct and indirect ways, the Salute shows links with Palladio. From Palladio derives the colour treatment: grey stone for the structural parts and whitewash for the rest. This was, however, not Palladio's invention or speciality; the method had, in fact, a medieval pedigree, was taken up and systematized by Brunelleschi and, after him, used by most architects who in one way or another took their cue from the Florentine Renaissance. The architects of the Roman Baroque never employed this method of differentiation, the isolating effect of which would have interfered with the dynamic rhythms of their buildings. Among the Palladian details used by Longhena I want to mention the segmental window with mullions, a type derived from Roman thermae and first incorporated by Palladio into ecclesiastical architecture in S. Giorgio Maggiore and the Redentore. Palladio found this type of window eminently suitable because, instead of introducing into a homogeneous design a new shape for the lights, it supported and repeated the form of the arches.

The linking of the small Corinthian with the large Composite order, the high pedestals of the columns, the break-

FIG. 4. S. Maria della Salute, Venice. View from the center of the octagon. (Fondazione Giorgio Cini, Venice)

ing of the entablature above them—all this derives from Palladio's S. Giorgio Maggiore. But behind this, hardly disguised, is Bramante, the Bramante of the Milanese period. In such churches as S. Maria di Canepanova (begun in 1492) or Battagio's Bramantesque S. Maria della Croce near Crema (built between 1490 and 1500) we have octagons with engaged columns, not unlike S. Maria della Salute. It is in these churches that we also find the high drum with the two round-headed windows to each wall section—a definite indication that Longhena knew such buildings. Instead of continuing the columns of the octagon into the architecture of the drum, however—as was the rule in Bramante's circle—Longhena placed the large wooden figures of Prophets above the projecting entablature of the columns. The impression that each column is a unit in its own right, while their unison sustains the self-contained, centralized character of the octagon, is therefore strengthened. The idea of the figures above the columns may have come to Longhena from the famous woodcut in Colonna's *Hypnerotomachia Polifili,* first published in 1499, where precisely this motif appears in a section through a centralized domed building with ambulatory.[10] This is not my discovery. On the contrary, in discussing Longhena's Salute, art historians often use this woodcut as a *deus ex machina.* But the *Hypnerotomachia,* well known to every Venetian, can of course only have determined the conceptual direction and not the actual planning. For it he turned, as I have tried to show, to Byzantine and Bramantesque ideas and wedded them to the Palladian tradition.

So far I have only talked about the octagon. A few steps separate it from the sanctuary. This domed space with apsidal endings in the transverse axis is only loosely connected with the octagon. Centralized plans with the congregational room and the presbytery forming almost independent units had a long tradition in the north of Italy, and once again close parallels are to be found in Bramante's circle. But there is something strange about Longhena's sanctuary, for its articulation has little in common with that of the octagon (Fig. 2). The principal motif is the giant pilasters in the apses. Between them are two tiers of windows, the lower in the shape of the so-called Venetian window, the upper framed by an aedicula. For this arrangement Longhena was indebted to Palladio who had performed a similar change of system in S. Giorgio and the Redentore between the naves and the centralized domed units, and it was the Redentore rather than S. Giorgio to which Longhena turned for guidance. In spite of the change of system, most of the horizontal divisions in the octagon and the sanctuary tally: the height of the pilasters with that of the columns, the entablature of the small order with the division between the two tiers of windows; and the main entablature corresponds as regards shape and height.

A third room, the rectangular choir, is separated from the sanctuary by a broad arch resting on pairs of free-standing columns, between which stands the large high altar. In order to reach this part, one has again to ascend a few steps. Inside the choir the articulation of the walls changes once again: here two small orders of pilasters are placed one above the other. The connection between the sanctuary and the choir is only established through the corresponding height of the two tiers. This time Longhena had recourse to Palladio's S. Giorgio Maggiore where similar pairs of columns frame the altar behind which appears the small-scale system of the choir.

Palladio as well as Longhena was guided, of course, by the principle that rooms of different function, shape, and size require different articulations, whereby they are given a specific and autonomous character. One may be tempted to conclude that Longhena used not only retrogressive Palladian detail but also grouped together isolated spatial units in an additive Renaissance-like manner. This would, however, be a serious misinterpretation of his intentions. It is a misinterpretation from which the older pragmatic history of art knew no escape.

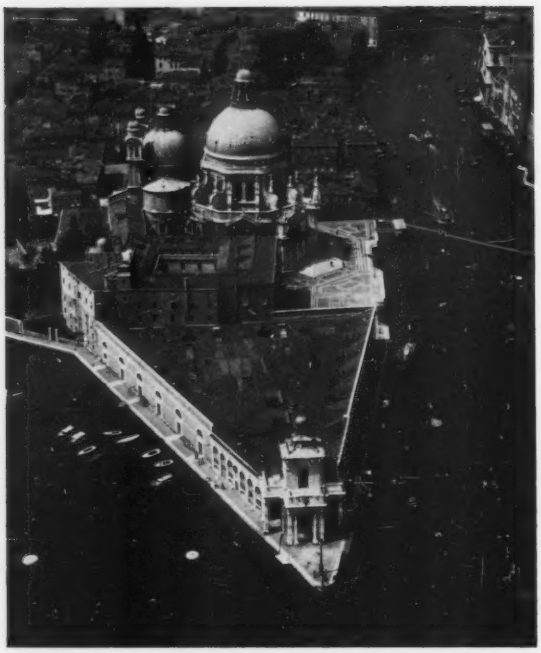
Longhena employed, in fact, a dual method of unification and integration, an objective-mathematical and a

FIG. 5. S. Maria della Salute, Venice. View toward the high altar. (Anderson)

subjective-optical one. As to the first method: simple modular relationships pervade the entire structure. I need not go into detail and shall give only a few figures, many of them mentioned by him in one of his reports.[11] The diameter of the large domed space is 60 Venetian feet; the distance from the corners of the piers inside the octagon to the inside wall of the chapels equals the radius of the circle, i.e., 30 feet. These break down into 5 feet for the piers, 10 for the chapels and 15 for the ambulatory. The sanctuary measures 40 by 80 feet and the choir 20 by 40, and the space reserved for the high altar is 10 feet deep. The ratios between choir, sanctuary and domed area of the octagon (20, 40, 60) form therefore the simple mathematical progression of 1 : 2 : 3. I need not labour the point. This suffices to show the immanent mathematical structure of the design. For an architect who had studied Palladio so closely, this was the way to attune the building to universal harmony.

The other method, by contrast, attunes the beholder to the optical relationships suggested in the building. On entering the church, the columns and arch framing the high altar lie in the field of vision and it is essential that, on looking straight ahead, only the high altar and nothing else can be seen in the distance. The beholder is directed to the spiritual centre of the church through a sequence of arches, one behind the other, from the arch of the octagon to that of the ambulatory and of the altar and, concluding the vista, to the arched wall of the choir.[12] So, in spite of the carefully calculated centralization of the octagon and in spite of the autonomy of spatial entities, unification is achieved in terms of a scenic progression. More thoroughly than the commission could ever have dreamed of, Longhena had complied with the demand that the high altar should dominate the view from the entrance (Fig. 5).

FIG. 6. S. Maria della Salute, Venice. Aerial view. (Fondazione Giorgio Cini, Venice)



This method of optical unification was also derived from Palladio. In Palladio's Redentore the hall-like nave and the centralized domed part—objectively entirely separate entities—are optically knit together for the view from the entrance. The visual lines I have drawn on the plan[13] show that from the entrance the beholder sees at the far end of the crossing a half-column coupled with a pilaster —a precise repetition of the motif that closes the nave. As one walks along the central axis, more and more of the farther dome supports come into view until from the centre one sees a grouping of half-columns and niches closely similar to the bays at the end of the nave. That this is unusual and a new departure may be shown by referring to the most important and most progressive contemporary Roman structure, the Gesù. Here the unification of the nave and the domed area is accomplished by repeating the same order of giant pilasters round the entire building without any of Palladio's scenic effects.

It is often said that Baroque architecture owes a great deal to the contemporary stage. As regards Roman Full Baroque architecture, this is correct only with considerable qualifications. In a building like Borromini's S. Carlo alle Quattro Fontane, which was begun in 1634, three years after the Salute, one cannot easily detect scenographic concepts short of divesting the term of any precise meaning. It would not be difficult to demonstrate that S. Carlino owes its poignancy to the sophisticated arrangement of interlocked rhythms. I think one may generalize and say that the architects of the Roman Baroque aim on the whole at dynamic spatial effects, and their buildings are therefore intrinsically non-scenic. Quite different Longhena; in his case the relation to the stage exists and is very specific. In the Salute scenery appears behind scenery. Instead of inviting the eye (as the Roman architects did) to glide along the walls and savour a spatial continuum, Longhena constantly determines the vistas across the space, and in this respect he goes far beyond anything Palladio had attempted to do.

I think it has become apparent that the judicious grouping of almost self-contained Renaissance-like units rather than the Roman concept of dynamic unification was the pre-condition for a strictly scenographic architecture. This also explains why the Late Baroque, the architecture, say, from Carlo Fontana onwards, in spite or just because of its classicizing tendencies, was essentially a scenographic style—even in Rome. Based on Palladio, Longhena had worked out an alternative to the Roman Baroque. His

Venetian Baroque was, in fact, the only high-class alternative Italy had to offer. One can hardly resist the temptation to see on a different plane a renewal of the old contrast between Venice and Rome, Titian and Michelangelo.

It remains to find out whether scenographic concepts also apply to the exterior of S. Maria della Salute. To an even greater extent than is the case with most monumental buildings, Longhena had to take into consideration the difference between the far and the near view. For the view from afar he created the extremely rich silhouette, the most imposing landmark in the panorama of the city (Fig. 6). Technical wizardry was needed to make the high dome possible. The side walls of the chapels are abutments to the dome and the pairs of scrolls which rest firmly on the

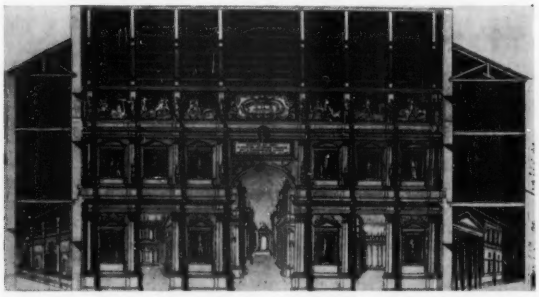


FIG. 7. Teatro Olimpico, Vicenza. *Frons scenae* by Palladio.

arches of the ambulatory take the place of Gothic buttresses. It is often maintained that Longhena's Salute follows closely Labacco's engraving of 1558 after Antonio da Sangallo's project for S. Giovanni dei Fiorentini in Rome.[14] A sober study, however, reveals this as an art-historical myth. Absolutely different from the Salute, in this relatively simple project the walls of the chapels, which serve as abutments, are entirely inside the containing circular wall of the church. But it may be conceded that Longhena probably found the large brackets attractive and that the transformation of the buttresses into grand decorative scrolls may stem from this source.

The Salute dome has an outer and an inner vault, the outer one consisting of lead over wood, in keeping with the Venetian tradition. The double shell—an ingenious device of differentiation between the interior and exterior appearance of the dome—had, of course, a long pedigree. A Byzantine-Venetian idea, Italian Renaissance architects had made full use of it, and they had also developed the false inner lantern, usually placed between the two shells and therefore not visible from outside. Longhena's exterior lantern, an airy structure, solely built for the far view has at its base a simplified version of the scrolls on which are perched Scamozzesque obelisks instead of figures. While the idea of the break between the lantern and the dome ultimately derives from Michelangelo's St. Peter's, the subsidiary dome with its stilted form over a simple circular drum is in line of descent from the Byzantine-Venetian tradition. Palladio himself followed this tradition and in the Redentore placed his Byzantine dome between two circular belfries. It is this arrangement that Longhena followed at the south end of the Salute. Although he thus incorporated a good deal of the *spiritus loci*, it remains a fact, that never before had the silhouette of a church been so varied and never before had entirely different types of domes been combined in one and the same building. It is clear that in the panoramic view perspective effects in the relationship of the domes could be brought into play, but hardly any proper scenographic principles.

What about the near view which is often more problematical in Venice than in normal cities, since by stepping back one might easily lose any interest in architecture! The square in front of the Salute is necessarily rather shallow, and it was therefore a wise decision to make the body of the church as low as possible and to emphasize, at least in the subsidiary fronts, the relationship to the human scale. It was, moreover, imperative to create a rich and diversified front (Fig. 3). For the view from the Canal Grande the chapels right and left of the main entrance are conspicuous. For that reason, Longhena treated them elaborately like little church façades in their own right; in fact, they are clever adaptations of the front of Palladio's small Chiesa delle Zitelle. Their order is carried over into the large triumphal arch motif of the main entrance. It is this motif that sets the seal to the entire composition. The central arch with the framing columns corresponds to the interior arches of the octagon, so that the theme is given before one enters the church. In addition, the small order too is repeated inside, and the niches for statues in two tiers conform to the two rows of windows in the sanctuary. The façade, therefore, combines the principal motifs of sanctuary and octagon. But there is more to this integration of the exterior with the interior: The façade is, in fact, devised like a *frons scenae*, to which the platform over the staircase forms the proscenium. With the central door thrown wide open as shown in a contemporary engraving,[15] the consecutive sequence of arches inside the church contained by the triumphal arch of the *frons scenae* conjures up a proper stage setting. It is also reminiscent of the stage that the floor inside rises with the perspective, first at the transition from the octagon to the sanctuary and then at the junction of the sanctuary and the high altar. By contrast, in none of the Roman Baroque churches is the continuity of the floor space interrupted by steps. When I speak of the *frons scenae*, I have not in mind the contemporary Baroque theatre which, after Aleotti's Teatro Farnese at Parma (erected between 1618 and 1628), always shows the wide open proscenium arch with the illusionistic stage behind

it. Longhena's monumental architectural curtain of the *frons scenae* with the perspective appearing through the central opening points in a different direction, namely to Palladio's Teatro Olimpico at Vicenza (Fig. 7). I think one can hardly doubt that it had an important formative influence on Longhena's thought. If you strip Longhena's façade of its giant order, the central arch motif framed by niches with statues in two tiers is extremely close to the Teatro Olimpico. But these direct formal relationships are less important than the conceptual approach which is so intimately linked with Palladio's stage.

The architects of the Renaissance as a rule designed façades of churches as structures existing in their own right without organic relationship to the inside. This resulted from the Renaissance practice of interpreting each problem on its own merits. Baroque architects, by contrast, saw outside and inside as an organic whole. In consequence, Baroque church façades in Rome are very different one from the other. But they all have that much in common that they are in one way or another linked to the respective interiors by dynamic devices. Bernini's façade of S. Andrea al Quirinale, for instance, reverses the inside design and movement. Longhena too saw the relation of inside and outside in organic terms. In his case, however, the integration is due to perspective devices borrowed from the stage. The Roman and the Venetian approach could hardly be more different.

S. Maria della Salute is the most distinguished example of scenographic architecture. Imbued with Palladio's ideas, but carrying them a decisive step further, Longhena made an important contribution to European architecture. In the last decades of the seventeenth century a remarkable volte-face can be observed in Italy: many architects turned from Rome to Venice, and Longhena's masterpiece came into its own.

COLUMBIA UNIVERSITY

1. G. A. Moschini, *La chiesa e il seminario di S. Maria della Salute* (Venice, 1842), contains the documents at present available. A few additions are in V. Piva, *Il Tempio della Salute* (Venice, 1930), an able compilation by a priest. Art historians have hardly taken note of the existence of these documents.

2. Characteristically, this inscription appears in large letters in the pavement of the church, laid out in a circle round the centre of the rotunda.

3. "Feet" are always Venetian feet. Ten English feet equal 8.77 Venetian feet, i.e., the Venetian foot is about 13 inches, and 2.85 Venetian feet = 1 m.

4. This summarizes a complex and protracted discussion which I shall analyze more thoroughly elsewhere.

5. "... ed essendo nel mezzo della Cupola grande, cioè nel mezzo di essa Chiesa si godranno benissimo tutte le cappelle e gli altari."

6. "Avendo essa Chiesa mistero nella sua dedicazione, essendo dedicata alla B.V. mi parve per quella poca virtù che Dio mi ha prestato, di farla in forma rotonda, essendo in forma di corona, per essere dedicata a essa Vergine."

7. S. Beissel, *Geschichte der Verehrung Marias im 16. und 17. Jahrhundert* (Freiburg, 1910), p. 478 f.

The close alliance between the crown and centralized building in contemporary thought finds welcome support in Domenichino's *Madonna of the Rosary*, Bologna (1617–25), where an angel holding a crown appears next to one with a small round temple, both resting on clouds close to the Virgin.

8. L'Abbé Auber, *Histoire et théorie du symbolism religieux* (Paris, 1871), II, 225.

9. Amongst the endless number of centralized churches dedicated to the Virgin may be mentioned S. Maria delle Carceri at Prato, Madonna di S. Biagio at Montepulciano, S. Maria di Loreto in Rome, S. Maria della Consolazione at Todi, S. Maria di Canepanova at Pavia, S. Maria della Steccata at Parma, Madonna di Campagna near Verona, S. Maria di Carignano at Genoa, etc., etc. The Incoronata at Lodi retains in the name the reference to the crown.

10. Often illustrated, see, e.g., Jacob Burckhardt, *Geschichte der Renaissance in Italien* (6th ed.; Esslingen, 1920), p. 44.

11. The position is somewhat complicated in so far as Longhena supplies figures for a design that does not entirely agree with the present one. Based on these figures, it is possible to reconstruct an earlier project.

12. The photograph is taken from inside the octagon and does not, therefore, show the viewpoint marked on Fig. 1.

13. R. Wittkower, *Architectural Principles in the Age of Humanism* (London, 1952), Fig. 43a.

14. Labacco's engravings are reproduced in W. Lotz, *Römisches Jahrbuch für Kunstgeschichte*, VII, Figs, 6b, c.

15. Illustrated in V. Piva, *op. cit.*

BOGARDUS REVISITED

Part II : THE IRON TOWERS

TURPIN C. BANNISTER

THE PARADOX OF James Bogardus has been that thus far his reputation for influencing the course of American architecture has been based on a misguided evaluation of his least significant accomplishment, the cast-iron front. He himself was responsible in large part for this misconception because he emphasized these façades in his advertising pamphlet of 1858, and because he failed to call attention to other works which led directly to an achievement of major importance. If Bogardus' contribution is to be properly judged, it is necessary to assess his whole production.

One project which has achieved considerable renown was the proposal which Bogardus submitted in 1852 for New York's Crystal Palace (Fig. 11). The design called for a huge circular hall at least 400 feet in diameter which would have filled Reservoir Square (now Bryant Park), the western half of the two-block site facing Sixth Avenue between Fortieth and Forty-second Streets. In the center a cast-iron circular tower, about 75 feet in lower diameter, was to rise in thirteen open stories to a height of 300 feet. A four-story cast-iron front ringed the 1200-foot outer circumference. The resulting annular hall, with an internal span of about 150 feet, was to be covered by a sheet-iron roof hung from link chains slung radially between tower and outer wall.[76] It was easily the boldest project offered in the competition.[77]

It is obvious that Bogardus' roof was inspired by current interest in suspension bridges. In 1845 John Roebling had built a suspended canal aqueduct over the Allegheny River near Pittsburgh. The following year he completed the Monongehela Bridge in the same city. By 1849 Roebling had erected four more canal aqueducts, and Charles Ellet had gained fame for a Niagara footbridge and his Ohio River span at Wheeling. In 1851 Roebling had begun the first successful railroad suspension bridge, that across the Niagara Gorge.[78] No doubt Bogardus had also seen or read of earlier British and French examples. Was he the first to apply the suspension idea to a building? The answer is "No," for by 1840, the year in which he had visited France, there was under construction at the Brittany naval base at Lorient a suspended iron roof, 140 feet in span, over the mast shop of the arsenal (Fig. 12). Moreover, in the same year this roof was illustrated in the fifth edition of Sganzin's *Cours de Construction,* a standard engineering text well known in the United States.[79] It is significant that Bogardus did not contemplate hanging his roof on wire cables, already being marketed by Roebling, but proposed link-chains such as were common in British practice and actually used for the similar span of the Lorient atelier.[80]

Of the supporting elements, the outer wall obviously stemmed from Bogardus' experience with cast-iron fronts. Its greatest interest lay in the ingenious circular plan which, acting as a self-bracing ring, would, theoretically at least, not have required any guys or buttresses to resist the inward pull of the radial roof chains. It was, however, the 300-foot central tower which formed the most prophetic part of the design. Although framed towers in timber were certainly no novelty, and although Trevethick in 1832 and Buckingham in 1848 had proposed towers built of iron, Bogardus' cast-iron skeleton was more than an idle dream because it was based on his own practical experience during the previous year. The Crystal Palace project has been cited as evidence of Bogardus' inventive genius, primarily because of its suspended roof. Its true merit is now seen to lie, not in fundamental innovations, but rather in achieving an imaginative architectural synthesis of current structural ideas.

There remain to consider five Bogardus structures which he himself never regarded as worth comment. The first three he did not even mention in his 1858 pamphlet; he listed the owners of the last two but without naming the works themselves.

The first two were fire alarm bell towers for the city of New York. The conflagration of 1845 had proved once more that prompt alarm and the immediate despatch of equipment were vital necessities, and that the old system of isolated lookouts and bells on a few public buildings could no longer be tolerated in a metropolis. In 1847, on recommendation of the chief engineer of the city fire department, the Council authorized the linking of the five existing lookout stations to department headquarters by telegraph.[81] In 1850 the city was divided into eight fire

Part I: Bogardus and the Cast-Iron Front *appeared in the December 1956* JOURNAL.

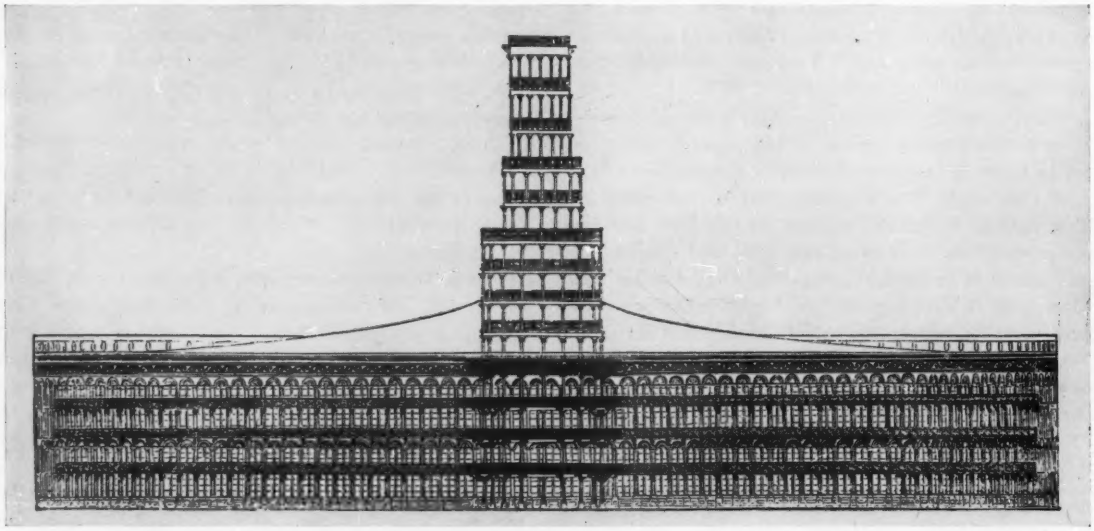
districts and several new timber bell towers were erected.[82] Some of these timber structures promptly burned.[83] Bogardus immediately proposed that such towers should be built of cast iron and the Council ordered one to be erected on 33rd Street near Ninth Avenue. It was finished by mid-August, 1851 (Fig. 13).[84] The tower was decagonal and about 100 feet high with six open stages of iron columns and horizontal beams. An iron spiral stair mounted to the enclosed lookout at the top. The bell, the largest in the continent and the fifth largest in the world, hung in the fourth stage.[85] It is obvious that this structure was the prototype of the 300-foot central tower of Bogardus' Crystal Palace proposal of 1852. In 1853 Bogardus and Hoppin built a second iron bell tower for the city near the corner of Macdougal and Spring Streets.[86]

The third structure was a lighthouse, almost identical in size and construction to the New York bell towers (Fig. 14). It was fabricated in 1853 for the Dominican Republic and was erected at the mouth of the Ozama River to mark the harbor of the capital, Santo Domingo (Ciudad Trujillo).[87] Bogardus' adaptation of the iron bell tower construction to lighthouses reveals once more his alertness to recent developments. Although the use of cast iron for such structures had been proposed as early as 1799 by Robert Stephenson and by Captain Joseph Brodie, R.N., and Joseph Couper, iron founder of Leith, for Bell Rock in the Firth of Tay, the first to be constructed, in 1824, was a small 30-foot high tower on Broomielaw Quay, Glasgow.[88] In 1834 William Tierney Clark erected another small one on the town pier at Gravesend.[89] Three years later, when Bogardus was in London, Captain Sir Samuel Brown, R.N., proposed a 90-foot cast iron lighthouse for Wolf's Rock, near Land's End.[90] During the 1840's several towers on this larger scale were achieved. The first was built in 1841–42 by Alexander Gordon, engineer to the London commissioners, on Morant Point, the easternmost tip of Jamaica, West Indies. Its nine tiers of flanged cast-iron plates formed a 100-foot tower shaped like a conical masonry tower.[91] Several others subsequently employed this frameless, plate construction.[92] More pertinent to Bogardus' iron-framed towers was the beacon constructed in 1843 at Black Rock harbor, on the south end of Block Island, Long Island Sound. It was 34 feet high and had a structural frame of wrought iron.[93] In the following year in Britain a similar frame, but of cast iron enclosed with wrought iron plates, was used by Walker and Burges for the 60-foot Point of Air lighthouse at the mouth of River Dee, northwest of Chester.[94]

It is clear, therefore, that Bogardus' towers take their place in a sequence which he must have known from a steady stream of publications during the 1840's. While his projects were visually lighter and more characteristic of iron because he omitted the usual enclosing jackets, this choice was determined by economy and not aesthetics. His Santo Domingo tower was "arranged to receive iron pannelling should it ever be found desirable to enclose it."[95]

The final pair of Bogardus' structures are towers for the manufacture of gun shot. In such towers molten lead was poured through a sieve at an upper level; the falling drops congealed into shot as they fell down the shaft and were caught and cooled in a large tank of water at the bottom. The gauge of the sieve and the height of fall controlled the

FIG. 11. Bogardus' Project for the New York Crystal Palace, 1852. (Benjamin Silliman, Jr., and C. R. Goodrich, *The World of Science, Art and Industry.*)



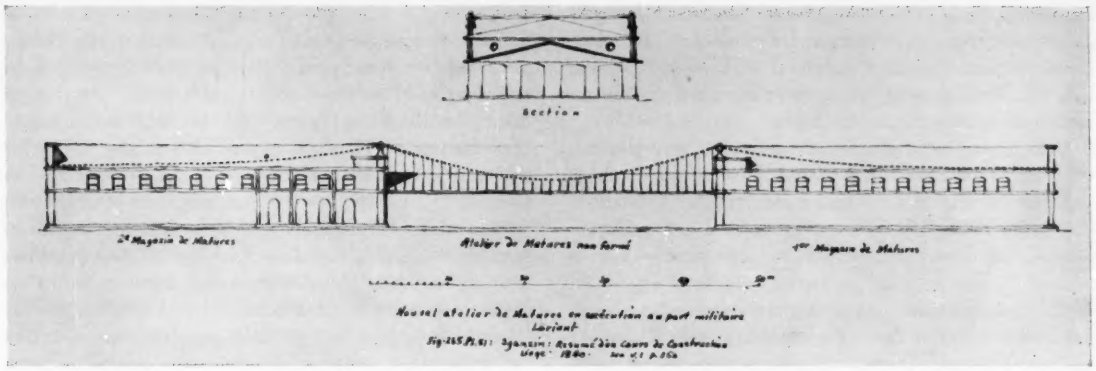


FIG. 12. Lorient. Naval Arsenal, Mast Shop, *c.* 1840. (Sganzin, *Cours de Construction*, Plate 51, Fig. 265)

size of the pellets. Such towers were commonly about 200 feet high, built of massive brick masonry, and shaped somewhat like an overgrown factory chimney. Perhaps the best known early example is the Phoenix Shot Tower which still stands majestically at Front and Fayette Streets in Baltimore. Its date is 1828 and its height 246 feet.[96]

Early in 1855 in New York James McCullough, president of the McCullough Shot and Lead Company, decided to move his business from Front Street to 63–65 Centre Street, a block north of Bogardus' factory and on the west side of the street (Fig. 1). This decision led to two difficulties. First, a traditional brick tower with its excessively thick lower diameter would leave little work space in the modest shop surrounding its base. Second, the site selected could hardly have offered worse soil conditions to support a tremendous load of vertical masonry because it lay exactly in the middle of the former Collect Pond which, though it had been obliterated by miscellaneous fill, flowed on (and to this day still flows on) in an underground drain to the Hudson.[97] Bogardus immediately came to the rescue, and in two months—from August 15 to the middle of October—built a tower uniquely slender and light.[98] Atop a firm foundation of brickwork, 4½ feet thick and 18 feet deep, the superstructure rose 175 feet. The octagonal shaft was 15½ feet in outside diameter at the top, but the base was only 25 feet, about half the usual dimension. To achieve this result, Bogardus had used eight cast-iron corner posts, tied together at the eight interior platform levels by horizontal cast-iron members. The resulting framework was thus based in principle upon his fire alarm towers but stood almost twice as high and almost two-thirds the height of his Crystal Palace project. More important, however, was the fact that the sides of this cage were then enclosed with 12-inch-thick panels of brick supported entirely by the framework. That this was indeed the case is clearly revealed in the photograph made just before the tower was taken down in 1908 (Fig. 15).[99] It reveals that, in order to make the catch basin at the base of the tower easily accessible from the shop in which it stood, the enclosing panels had been omitted entirely in the ground story.

Here, at one stroke, Bogardus anticipated the iron-skeleton, curtain-walled skyscraper of the next generation. It antedated Préfontaine's warehouse at the St. Ouen Docks by a decade.[100] Saulnier's Turbine Building for the Menier Chocolate Company at Noisiel-sur-Seine was sixteen years in the future.[101] All that Bogardus' tower lacked to equal the final structural solution of the skyscraper was to protect the ironwork from fire by imbedding it within the masonry. Nevertheless, Bogardus did not invent curtain-wall construction. Examples lay all around him. Consciously or subconsciously, he adapted a principle widely used in medieval half-timbered construction. In the 1860's, when French architects adopted the same iron-framed, masonry panelled system, in naming it their term for "half-timber," *pan de bois*, with great lucidity became *pan de fer*.[102] Did Bogardus reason thus? He may well have done so, since the better-built wood-framed houses of his day still commonly used brick nogging. His contribution was simply to combine the framework of an iron lighthouse with a masonry jacket.

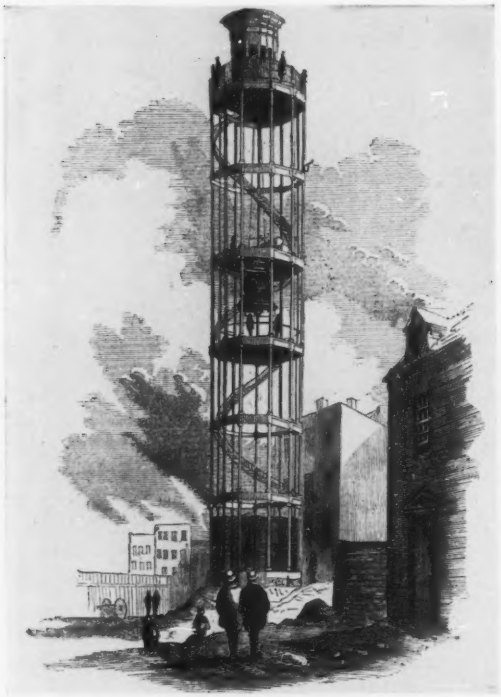
The second tower, for Tatham and Brothers, was built the following year at 82 Beekman Street (Fig. 16). The crowded site called for repetition of Bogardus' previous solution. Each of eight columns rested on a massive brick foundation pier weighing 30 tons, joined to its neighbors by inverted arches. On this was erected the 217-foot tower.[103] Again, the columns were joined by girders, but, although they too supported the enclosing brickwork, they were hidden inside these walls. No doubt this change came from a desire to protect the iron girders and their bolts as much as possible from the weather. In doing so, however, Bogardus inadvertently moved closer to later fireproofing principles. The tower was demolished in 1907.[104]

The slender verticality of these towers made them conspicuous landmarks.[105] In 1860 McCullough illuminated his with candles at its forty windows to celebrate the visit

of Edward, Prince of Wales. But their plans did not permit public visits for observation, and so they remained aloof utilitarian curiosities. Yet we should ask whether they were only idle aberrations or whether they deserve a place in the main stream of structural evolution.

Unfortunately, the record is not definitive. Nevertheless, it is significant that in 1855 George Johnson was working in Badger's office at 42 Duane Street, only a block and a half south of McCullough's tower (Fig. 1). It is inconceivable that he would have neglected such a unique opportunity to follow its erection. Leaving Badger's employ in 1862, Johnson opened an architectural office in New York, but after the end of the war worked briefly in Richmond and with Hayward, Bartlett and Company in Baltimore.[106] In 1869 he moved to Buffalo to erect a fireproof brick grain elevator on a system which he patented.[107] This experience stirred his interest in recent French patents for fire-resistant floors of hollow tile and iron beams and early in 1871 he visited Paris to study them.[108] On his return to New York, he and Balthasar Kreischer obtained a patent on a similar system.[109] Immediately after the Chicago fire in October, Johnson rushed there to promote his tile and the following spring won its adoption for the Kendall Building which was designed by John M. Van Osdel, for whom a decade earlier Johnson had erected several of Badger's iron fronts.[110] When the Chicago boom subsided in 1874, Johnson returned to New York, but failed to stir interest in his product. Finally, in September, 1877, he again came to Chicago and with his son set up a company to make and install the tile. After his death late in 1879 his son helped form the Ottawa Tile Company which was later to become the well known Pioneer Fire-Proof Construction Company.[111]

FIG. 13. New York. Fire alarm bell tower, 33rd Street near Ninth Avenue, 1851. (*Illustrated News*, Vol. 1, 1853, p. 61)



Meanwhile, in the late '70's, some Chicago architects were seeking means to raise the ceiling of Loop structures without forfeiting valuable light and rental space to excessively massive bearing masonry. In 1879 William LeBaron Jenney took the initial step in the five-story first Leiter Building. In it he introduced rectangular cast-iron columns on the inner faces of the east and west walls and piers to support the timber girders of the floor system. On the façades each bay had triple windows divided by two cast-iron mullions which ran vertically as continuous columns from foundations to roof. The brick spandrel panels under these windows were carried on cast-iron lintels supported by the mullion-columns and, at the ends, by the main piers of masonry.[112] In the eastern façade facing Wells Street it would have required only the moving of the rectangular iron columns to the center of the masonry piers and the bolting of the ends of the spandrel lintels to these columns to achieve a true curtain wall carried upon a skeleton frame. Late in 1883 Jenney incorporated these final steps in his design for the nine-story Home Insurance Company's Office Building which was erected during the following year.[113]

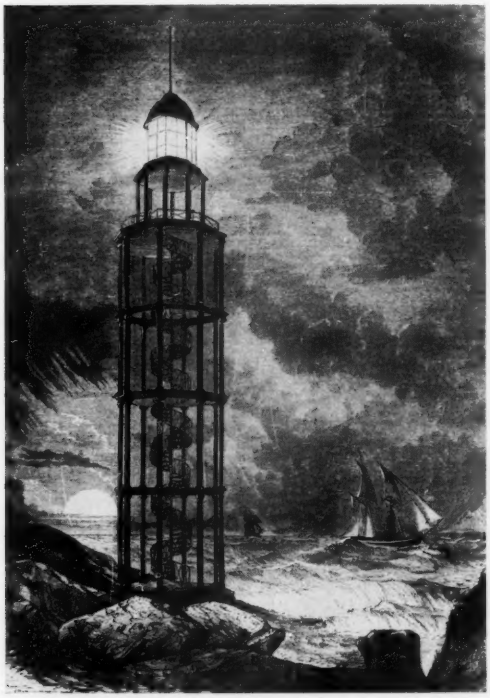
Inevitably, an advance so fundamental to the development of skyscraper construction has encouraged many speculations with regard to the milieu of ideas out of which Jenney created his final culminating solution. Without detracting in any way from the crucial role of this remarkable man, it is usually recognized that most great technical innovations have arisen out of the partial and hesitant contributions of many experimenters. Indeed, this was Jenney's own view.[114] For this reason, therefore, Jenney's background and contacts assume uncommon significance and interest. He had studied at the Lawrence Scientific School; in 1856 he had earned the diploma in civil engineering of the *Ecole centrale des arts et manufactures* in Paris; he had returned to France in 1858–59 for business, study, and travel; and he had had excellent experience in railroad building and as General Sherman's chief engineer during the Civil War. For many years he was the only Chicago architect to attend the annual conventions of the American Institute of Architects normally held in eastern cities. Moreover, the fact that Jenney had served as Professor of Architecture at the University of Michigan during the academic year 1876–77 suggests both that he undertook a serious analytical review of current structural developments in preparation for his lectures and that he enjoyed

stimulating association with an excellent engineering faculty.[115]

Two suggested sources of Jenney's inspiration have a strong apocryphal flavor. William B. Mundie, assistant from 1884 and, after 1891, partner in Jenney's firm, believed that Jenney first recognized the advantages of skeleton construction when, as a youth on a voyage in one of his father's whaling ships, he observed in Manila the strength of native bamboo-framed huts.[116] On the other hand, Henry Ericsson, who built the Manhattan Block for Jenney and therefore knew him well, relates that Jenney was impressed with the lithe strength of skeleton construction when he witnessed his wife lay a heavy book upon a wire birdcage.[117] Even if such romantic rationalizations contain a grain of truth, they deal solely with one phase of the problem, the skeleton alone. In any case, such sources were surely superfluous in a city where dwelling construction had for half a century been dominated by that most dramatic application of the skeleton principle, the balloon frame![118]

The crux of the problem was more than just the skeleton frame; it was the combination of this frame with an enclosure, and the building of the whole system in incombustible materials. Jenney's specific motives in attacking the problem were three-fold. First, he had long desired to improve the natural lighting of office buildings.[119] Second, he wished to reduce the weight of masonry bearing walls and thereby simplify foundation and settlement problems as well.[120] The third motive came to focus in April, 1883, when the first great strike of Chicago bricklayers revealed the alarming stranglehold which that group had acquired over all large-scale commercial building in Chicago.[121] The first of these factors resulted in the wall columns and mullions of the Leiter Building; the other two inspired renewed effort during the designing of the Home Insurance Building.

FIG. 14. Santo Domingo (Ciudad Trujillo), Santo Domingo, Lighthouse, 1853. (*Illustrated News*, Vol. 1, 1853, p. 133)



In facing these problems, Jenney most certainly did not work in a vacuum. He had kept well informed by reading American and foreign, and especially French, technical journals.[122] It seems highly probable that he had learned with little delay of the St. Ouen dock warehouse and the Menier Turbine Building, published in 1865 and 1873, respectively.[123] Likewise, he may well have studied in the mid-'seventies the stimulating and prophetic second volume of Viollet-le-Duc's *Entretiens sur l'architecture*, in which appeared in 1872 the challenge: "A practical architect might not unnaturally conceive the idea of erecting a vast edifice whose frame should be entirely of iron, and clothing that frame, preserving it by means of a casing of stone."[124]

Notwithstanding these timely possibilities, there remains the question of a specific stimulus. This may well have stemmed from Bogardus because it seems highly probable that Jenney knew the McCullough and Tatham shot towers. After returning from Paris late in 1856 he was in New York at least twice during the following winter, only a few months after their completion. He was there again in April, 1858, and in 1860 on business as an engineer for the Bureau of American Securities, and he returned to the city in 1866 to accept the vice-presidency of two New York companies which operated coal mines in northern Pennsylvania.[125] Thus, with his absorbing interest in structures, it is difficult to believe that he failed to note Bogardus' soaring landmarks. In 1868 Jenney came to Chicago and soon established himself as an architect.[126] His first important commercial building was the Portland Block in 1872 and this was followed by the Lakeside Block in 1873 and the Crilly Building in 1878. Since height had not yet become an architectural passion, he adopted for these structures the prevailing mode of heavy bearing masonry for exterior walls.[127] But, although Jenney was already endeavoring to provide adequate natural light for the offices in these blocks, the required masonry piers strictly limited window size. In 1879 the Leiter façades corrected this defect and even exceeded the large glass areas already attained in some iron fronts.[128] The emphatic demand of the officers of the Home Insurance Company for maximum light provided Jenney with the final incentive to create his full solution of skeleton frame and curtain wall.[129]

It is tempting to suppose that George Johnson helped to

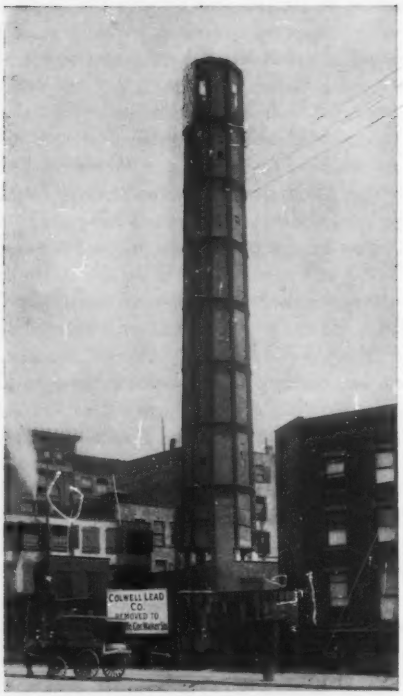


FIG. 15. New York. McCullough Shot and Lead Company, 63–65 Centre Street, Shot tower, 1855. View during demolition in 1908. (Courtesy of the New-York Historical Society, New York City)

FIG. 16. New York. Tatham and Brothers, 82 Beekman Street, Shot tower, 1856. (Courtesy of the Charles A. Schieren Company)

refresh Jenney's recollection of Bogardus' towers. Perhaps between October, 1871, and early 1874 when he was in Chicago installing his tile fireproofing in the Kendall Building and the Cook County Courthouse and Jail, or between September, 1877, when he returned to form his tile-making company, and his death late in 1879, Johnson recognized the basic similarity between the problems solved by Bogardus' towers and those inherent in the new tall buildings of Chicago, and suggested their applicability to the Chicago situation. No doubt it was only coincidence that the Home Insurance Building, the first of the new breed, was, with its height of 179 feet, only four feet higher than the McCullough tower, and that both had the same number of stories, but the correspondence does indicate analogous structural conditions and techniques. No record survives that Johnson and Jenney discussed Bogardus' towers, but it is difficult to believe that they lacked opportunities to do so. In promoting his product, Johnson must surely have visited frequently all of the city's important architectural offices. It may well have been Johnson's efforts that led Jenney, four years after Johnson's death, to adopt hollow tile fireproofing for the Home Insurance Building. Thus, though detailed confirmation is absent, the surmise of such contact does not violate credibility. The conjunction of persons, interests, experiences, and motives seems too compatible to lack meaning.[130] If Jenney knew the New York shot towers—either with or without Johnson's help—and it seems entirely plausible that he did, Bogardus' neglected orphans comprise a new and important element in Jenney's technical equipment, take on unexpected significance in the evolution of modern architecture, and paradoxically become their creator's greatest claim to architectural fame.

In summary, the evidence presented in this investigation seems to deny Bogardus the fundamental inventive genius once accorded him. But, if he formulated no new, epoch-making principles, he did exhibit amazing alertness and receptivity in adapting to his purposes, and with admirable alacrity, the rapidly expanding technology of his day. Thus, he was an intriguing representative in the field of mid-nineteenth-century building construction of that phenomenon, the inspired mechanic, who has done so much in every age to apply science and technology to the needs of daily life. To this activity he brought a restless energy often considered typical of the new American nation. He was a born promoter and exploiter. Indeed, it is his enthusiastic

vitality which now most arouses our sympathy and interest. If this role is less dramatic than that previously conceived for him, it is still one that is highly creditable. For, in the last analysis, he popularized iron fronts so effectively that the fashion for them reached almost every city in our land. To this we can now add the likelihood that he contributed, through his long-neglected towers, to the realization of our national architectural symbol, the skyscraper. Perhaps the best measure of Bogardus' true place in the evolution of our architecture is that he has required and received a century afterward so long an essay to define it.

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76. Benjamin Silliman, and C. R. Goodrich, *The World of Science, Art, and Industry* (New York, 1854).

77. Other competitors were: Sir Joseph Paxton, whose proposal was singularly undistinguished; Andrew Jackson Downing, who suggested a huge canvas-covered, iron-ribbed dome; J. W. Adams, who conceived a large octagonal dome supported on ribs made of bundles of gas pipes; and Leopold Eidlitz, who also offered a suspended roof (Horace Greeley, ed., *Art and Industry as Represented in the Exhibition at the Crystal Palace, New York, 1853–54* [New York, 1853], pp. xi–xii). The iron and glass hall actually erected was designed by Karl Gildemeister (1820–69), a native of Bremen who worked for some years in New York as an artist and architect (Planat, *op. cit.*, "Gildemeister, Karl"; *Trow's New York City Directory*). For this project he took as partner Georg Johan Bernhard Carstensen (1812–57), a Dane who had laid out in 1843 and then managed Copenhagen's favorite pleasure park, Tivoli (*Illustrated News*, I [1853], 11; II, 46; Greeley, *loc. cit.*; *Dansk Biografisk Leksikon* [Copenhagen, 1934], IV, 558–61). Carstensen's role was apparently that of a cosmopolitan "idea" man and it was he who, drawing upon extensive Spanish and North African travels, initiated the building's exotic mélange of Saracenic ornament.

78. David B. Steinman, *The Builders of the Bridge* (New York, 1945), pp. 85, 90–99, 103–5, 161–9.

79. Joseph-Mathieu Sganzin (1750–1837), eminent French civil engineer, was from 1798 professor at the Ecole Polytechnique and from 1803 *Inspecteur général des Ponts et Chaussées*. Ordered by Napoleon to publish his lectures, his *Cours* first appeared in 1807. ("Notice of the life and services of the late M. Sganzin," translated from *Annales des Ponts et Chaussées*, 1837, in *Journal of the Franklin Institute*, Vol. 22, 2nd series, 1838, p. 123.) A second edition was issued in 1809, a third in 1821, and a fourth in 1838. The Lorient suspended roof was noted in the fifth edition (1840) as then under construction (I, 350, Pl. 51, Fig. 265). An English translation of the third edition was published in Boston in 1827, with a second in 1828, and a third in 1837 (H.-R. Hitchcock, *American Architectural Books* [3rd ed.; Minneapolis, 1946]). The Lorient roof may also have inspired Joseph Aloysius Hansom, London architect, to propose in 1842 a Metropolitan Music Hall, the roof of which was to hang from chains suspended from four corner towers to form "the largest room in the world" (*Mechanics' Magazine* [London], Vol. 35 [1842], p. 265, quoted in J. C. Loudon, *Encyclopaedia of Cottage, Farm, and Villa Architecture* [2nd ed.; London, 1846], p. 1251). Since both of these publications had an enormous distribution, it is not impossible that Hansom's project may also have stimulated Bogardus. All of these may indeed owe a general debt to the *Rotonde du Panorama*, built in 1839–40 at Paris by the architect, Jacques-Ignace Hittorff. (J.-I. Hittorff, *Description de la rotonde du Panorama des Champs-Elysées* [Paris, 1842]; *Revue Générale* (Daly), II [1841], 500, 511, Pl. 27–31). The filiation was not direct since the Parisian roof rested *upon* suspended iron rods rather than being hung *from* iron chains.

80. Roebling began the manufacture of wire rope at Trenton late in 1849 (Steinman, *op. cit.*, p. 141).

81. Lowell M. Limpus, *History of the New York Fire Department* (New York, 1940), pp. 184–5. The stations were located atop City Hall, the Merchants' Exchange, and the Jefferson, Centre, and Essex markets. The alarm bell on the roof of City Hall is seen in Edward Burckhardt's panoramic drawing (reproduced in Kouwenhoven, *op. cit.*, p. 191). Three bells, each larger than before, had cracked in 1836, 1838, and 1848, until finally in 1849 a bell weighing five tons was installed with a striking apparatus which rotated the bell slightly at each stroke (Stokes, *Iconography*, V, 1817). It should be noted that New York's first telegraph line, to Philadelphia, was completed in 1846 (Stokes, *New York, Past and Present*, p. 79).

82. Limpus, *op. cit.*, p. 199

83. The Jefferson Market tower, Sixth Avenue at Tenth Street, burned July 29, 1851. It was rebuilt in timber (Stokes, *Iconography*, V, 1835). A woodcut view of this tower is given in Limpus, *op cit.*, p. 198. A contemporary photograph is in the De Voe scrapbook at the New-York Historical Society.

84. Stokes, *Iconography*, V, 1835.

85. *Illustrated News* (New York), I (1853), 61.

86. *Ibid.*; Stokes, *Iconography*, V, 1847; Limpus, *op. cit.*, p. 257; *Harper's Weekly Magazine*, February 28, 1874, with views drawn by Winslow Homer (reproduced in Kouwenhoven, *op. cit.*, p. 341).

87. *Illustrated News*, I (1853), 133, with a woodcut view. The octagonal tower rose, in four open stages, about 17 feet in diameter, and a fifth stage somewhat smaller, to a height of 75 feet. It cost $6000, f.o.b. New York.

88. Letter of John Rennie (*Civil Engineers' and Architects' Journal*, XII [1849], 77–9); Robert Stephenson, *Report to the Commissioners of the Northern Lighthouses* [1800], p. 440; *Glasgow Mechanics' Magazine and Annals of Philosophy*, I (1824), 162.

89. Peter Paterson, "An Account of the Cast-Iron Lighthouse Tower on Gibbs' Hill in the Bermudas" (*Minutes of Proceedings, Institution of Civil Engineers*, IX [1849–50], 182. Statement by Alexander Gordon during discussion); "Memoir on William Tierney Clark" (*Ibid.*, XII [1852–3], 153).

90. *Journal of the Franklin Institute*, XIX (2nd series, 1837), 55, quoting *Mechanics' Magazine* (London).

91. *Civil Engineers' and Architects' Journal*, IV (1841), 333–4.

92. Gibbs' Hill, Bermuda, 106 feet high, designed 1842, erected 1844–45, by Alexander Gordon (Paterson, *loc. cit.*); harbor at Galle, Ceylon, 80 feet high, 1846, by Gordon (Architectural Publication Society, *Dictionary of Architecture*, "Lighthouses, Iron"); Fasnet Rock, southwest Ireland, 86 feet, 1848–54 (W. H. D. Adams, *Lighthouses and Lightships* [New York, 1870], pp. 204–6); Middleton Point, Saugar Island, at the mouth of Hooghly River, south of Calcutta, Bengal, 70 feet high, designed by Cowper for East India Company, cast 1850 by Fox, Henderson Company (*Civil Engineers' and Architects' Journal*, XIII [1850], p. 309).

93. *Journal of the Franklin Institute*, VI (Series 3, 1843), 385–90. It was designed by Captain W. H. Swift of the Corps of Topographical Engineers, and the ironwork was fabricated by Cyrus Alger of Boston.

94. *Civil Engineers' and Architects' Journal*, VII (1844), 208, 293.

95. *Illustrated News*, I (1853), 133.

96. WPA Writers' Program, *Maryland, a Guide to the Old Line State* (New York, 1940), p. 228, and photograph following p. 282; the operation of this tower is shown in *Illustrated News* (New York), I (1853), 244–5. It rivalled Europe's tallest, the 249-foot tower at Villach, Austria. The walls of the Phoenix tower at grade were 4 feet, 6 inches thick. In 1853 there were six shot manufacturers in the United States: two in New York, and one each in Philadelphia, Baltimore, St. Louis, and Lead Mines (now Austinville), Wythe County, Virginia (*ibid.*). Thomas Jackson's shot

tower at Lead Mines was a square 75-foot tower built of stone about 1820 (WPA Writers' Program, *Virginia, a Guide to the Old Dominion* [New York, 1940], p. 478). The Chicago Shot Tower Co., organized by Eliphalet W. Blatchford in 1867, erected a typical masonry tower at 40 North Clinton St. (*Industrial Chicago* [Chicago, 1891], II, 427; woodcut view in *A Business Tour of Chicago* [1887], p. 85).

97. The original shore line is shown by the Landmark Map, Battery to Franklin Street, reproduced in Stokes (*Iconography*, III, Pl. 174) and apparently based on Ratzer's map of 1766 (I. N. Phelps Stokes, *American Historical Prints* [New York, 1933], p. 22, Pl. 20) which Stokes characterized as extremely accurate; in the Taylor Roberts map of 1796 (*Ibid.*, p. 42, Pl. 36–b), which Stokes also described as accurate, the pond was already considerably reduced by filling; by about 1811 it finally disappeared (Stokes, *New York, Past and Present*, p. 25). Haviland's Halls of Justice, "the Tombs," 1838, rested its Egyptian Revival mass on the same fill in the block just to the north. The pond drained originally through a small brook to the East River, but at the time of filling a cut was dug to divert the flow of the springs west to the Hudson via the canal which later became Canal Street (Fremont Rider, *New York City, a Guide Book for Travelers* [2nd edit.; New York, 1924], p. 198).

98. *New York Daily Times*, October 1, 1855, cited in Stokes, *Iconography*, V, 1862, and reported in *The Builder* (London), XIII (December 15, 1855), 616.

99. Demolition was due to the construction of the Interborough Subway which curves northwestward from Centre Street into Lafayette (Elm) Street, passing directly under the site of the tower. After the Civil War, the plant had been bought by the Colwell Lead Company.

100. *The Builder* (London), XXIII (1865), 297; Roger H. Newton, "New Evidence on the Evolution of the Skyscraper," *Art Quarterly*, IV (Winter, 1941), 56–69.

101. *Encyclopédie d'Architecture*, III (Sér. 2, 1873), 116–120; VI, 91–3; Russell Sturgis, *Dictionary of Architecture and Building* (1901), "Iron Construction" by W. R. Hutton; Sigfried Giedion, *Bauen in Frankreich, Eisen, Eisenbeton* (Berlin, 1928), p. 46. The use of this construction arose because the building housed water-powered machinery and was erected on piers across the Marne River.

102. Planat, *op. cit.*, "Pan de fer."

103. *New York Daily Times*, December 18, 1856, cited in Stokes, *Iconography*, V, 1865.

104. It was taken down between May 25 and June 5 to make way for an addition to the adjoining Schieren building (*New York Sun*, January 2, 1907, cited in Stokes, *loc. cit.*). The main building at 82 Beekman has an iron front which was probably furnished by Bogardus. Bogardus did not follow the custom of other iron works in placing a signature plate on the front, but the scale and detail of this front seem similar to his work.

105. Panoramic views showing either or both towers: aerial view, woodcut, *Harper's Weekly*, November 19, 1870, shows the Tatham tower from a station point which apparently was the top of the McCullough tower, and at the center of the lower edge just reveals the upper story of the building which replaced Bogardus' Factory (reproduced in Kouwenhoven, *op. cit.*, p. 332); both towers appear in a photographic panorama taken by W. W. Silver in 1874 from the roof of the Post Office (copy in the New York-Historical Society; reproduced in Stokes, *Iconography*, III, Pl. 155a); *King's Handbook* gives photographs taken about 1890 from the dome of the World Building looking north up Centre Street with the McCullough tower at mid-distance (p. 54), and looking southeast toward the Tatham tower (p. 62).

106. Andreas, *op. cit.*, III, 87.

107. The Niagara and Plympton Fireproof Grain Elevator (*ibid.*); Johnson was copatentee with George Milsom of Patent No. 87,679, dated March 9, 1869. It should be noted that in 1859 Badger and William S. Sampson had received Patent No. 24,424 for an iron grain elevator, and that Badger had erected two such elevators, each 107 by 125 feet and five stories high, one for the U. S. Warehouse Company, Atlantic Dock, Brooklyn, and one for the Pennsylvania Railroad on Washington Street, Philadelphia. In his 1865 catalog Badger named Johnson as the architect of both (*Illustrations of Iron Architecture*, pp. 23, 34).

108. Andreas, *op. cit.*, III, 87.

109. Patent No. 112,926, dated March 21, 1871.

110. Andreas, *op. cit.*, III, 88. Van Osdel (1811–91) had first come to Chicago in 1836 as a builder. During the winter of 1840–41, he was in New York as associate editor of the *American Mechanic* (which after a hiatus became in 1845 the *Scientific American*). Ericsson (*op. cit.*, pp. 134, 184, 287; no source is cited, but he had known Van Osdel well) states that Van Osdel "worked with Badger on his [Badger's?] iron front idea." In 1840 Badger was listed in *Adam's Boston Directory* as a partner (or employee) of A. Richardson and Co., saw makers, but he did not appear in the 1841 and 1842 issues. Neither was he listed in New York in these years, but it is still possible that he may have been in New York and met Van Osdel. In 1841 Van Osdel returned to Chicago and two years later became a partner of Elihu Granger in a foundry and machine shop. In 1845, at the request and guarantee of a group of Chicago builders, Van Osdel opened the city's first architectural office (Ericsson, *op. cit.*, p. 135; *Industrial Chicago*, I, 594). Due to his interest in iron, his professional designs came to include an increasing amount and diversity of iron (Ericsson, *op. cit.*, p. 184). Van Osdel and Johnson, as Badger's agent, are credited with the introduction of iron fronts in Chicago in 1856 (*ibid.*, pp. 151–7; Thomas E. Tallmadge, *Architecture in Old Chicago* [Chicago, 1941], p. 109). In that year they furnished fronts for: the Allen Robbins block of stores at the southeast corner of South Water and Wells, 231 foot frontage, 5 stories (*Illustrations of Iron Architecture*, p. 24, Pl. 54); and two five-story groups with uniform façades opposite each other on Lake Street east of State Street: the north side, 136 feet long, built for five owners, Frederick Tuttle, Jason McCord, George Collins, Tuthill King, and S. P. Skinner (Ericsson, *op. cit.*, pp. 151–2; *Industrial Chicago*, I, 102, plate opp. p. 154; II, 384; *Illustrations of Iron Architecture*, Pl. 70), and the south side, 135 feet long, for Cornelius and William Price, J. W. Waughop, M. D. Gilman, and Thomas Church (Ericsson, *op. cit.*, p. 153; *Industrial Chicago*, I, 384). The latter two made Lake Street "the finest architecturally in the city, with scarcely a rival on the continent" (Ericsson, *op. cit.*, p. 151; two views in Jevne and Almini, *Chicago Illustrated*, portfolio in the Chicago Historical Society), and comprise a late commercial survival of the English "terrace" idea. In 1857 Van Osdel designed five five-story fronts: Daniel McElroy, southwest corner of Randolph and Dearborn; M. O. Walker; William Jones; Peter Page; and Alexander Lloyd, northwest corner of Randolph and Wells (Ericsson, *op. cit.*, pp. 155–6). Ericsson (p. 156) states that Van Osdel let the contracts for these façades to local foundries, but that the panic of 1857 led Jones and Page to curtail orders, and Lloyd, who paid $11,256.85 to N. S. Bouton for his façade, was ruined in the crash. Badger, however, in 1865 listed Lloyd as a customer, and also J. Link (*Illustrations of Iron Architecture*, p. 24, Pls. 7, 19), the latter being located at La Salle and Lake (*Industrial Chicago*, I, 117). Moreover, in 1858 Bogardus (*op. cit.*) listed four Chicago customers: Isaac H. Burch, A. G. Burley and Co., Peter Page, and Tuttle. If the attribution in 1868 of all Chicago iron fronts, 1100 feet of frontage, to Van Osdel was correct (*Biographical Sketches of the Leading Men of Chicago* [Chicago, 1868], p. 94), it suggests that the Bogardus fronts were erected before 1856, because the priority of the Robbins front by Badger is based on the fact that it appears as the first item in the first of three extant volumes of Van Osdel's office record books (now in the Chicago Historical Society). A five-story Burch Block, destroyed in the 1871 fire, stood on the southwest corner of Wabash and Lake Streets (photograph in Paul Gilbert and Charles L. Bryson, *Chicago and Its Makers* [Chicago, 1929], p. 322), but only the first floor store fronts appear certainly to be of iron. The duplication of Frederick Tuttle in both the Bogardus and Badger lists may mean that Tuttle, with his numerous real estate interests, had used an iron front before his 1856 Lake Street building. Bogardus' front for Page could be either that erected in 1857 or an earlier one. No iron-fronted building survived the fire of 1871, but twenty new iron façades were erected in 1872, many replacing earlier examples (Ericsson, *op. cit.*, p. 211; *Industrial Chicago*, II, 385–6).

111. Andreas, *op. cit.*, III, 88.

112. William B. Mundie, "Skeleton Construction, its origin and development applied to Architecture" (Manuscript written in 1932 and recorded by *Chicago Architectural Archives Project*, under sponsorship of the Burnham Library of the Art Institute of Chicago and the Department of Architecture of the University of Illinois, Microfilm Roll No. 23) pp. 14–15; Frank A. Randall, *History of the Development of Building Construction in Chicago* (Urbana, Illinois, 1949), pp. 13, 88–9; Carl W. Condit, *The Rise of the Skyscraper* (Chicago, 1952), pp. 112–3. In 1888 two more stories were added. The building, now known as the Morris Building, still stands at 200–208 West Monroe Street, at the northwest corner of Wells. The working drawings were microfilmed by the Chicago Architectural Archives Project.

113. Mundie, *op. cit.*, pp. 32–9; Randall, *op. cit.*, pp. 105–7; Condit, *op. cit.*, pp. 114–6, 133; Tallmadge, *op. cit.*, pp. 193–7. The building stood on the northeast corner of Adams and LaSalle Streets. It was demolished in 1931. In 1890 two more floors had been added. The working drawings were microfilmed by the Chicago Architectural Archives Project.

114. Report of a committee for the Field Estate, quoted in Tallmadge, *op. cit.*, p. 196. Mundie (*op. cit.*, pp. 10–11) emphasized that "Jenney was always opposed to any statement that spoke of skeleton construction literally as an invention . . . it was the evolution of principles . . . though it remained for Mr. Jenney to apply throughout an entire building what had been done before only in small parts of buildings. Architects had occasionally been obliged to build an iron column into a masonry pier where the load was too great for the masonry, and Mr. Jenney had done this several years before in the Fletcher and Sharp Bank Building in Indianapolis, in order to gain light." It should be noted that, in citing the age-old use of the skeleton principle, Jenney adopted the best possible defense against the false pretensions of Buffington's claim to priority (see n. 122). Mundie also records (pp. 95–6), apropos Buffington's patent of 1888, that "Jenney often stated that the question of applying for a patent occurred to him at the outset, but what was done as a whole (in the Home Insurance Building) had often been done in a single pier; he did not think that the patent, if attacked, could be successfully defended. Still he regretted he had not made the application, as it would have established conclusively his priority."

115. An autobiographical statement covering the period to the end of the Civil War is recorded, along with Jenney's scrapbook, in Microfilm Roll No. 11, *Chicago Architectural Archives Project; Industrial Chicago*, I, 602; *DAB*, "William LeBaron Jenney," by Carl W. Mitman.

116. Randall, *op. cit.*, p. 12, based on Mundie, *op. cit.*, pp. 10–11. Jenney himself did not mention this observation in his autobiographical statement, but his later lectures at the Art Institute on primitive and historical buildings and his articles in the *Inland Architect* indicate that he appreciated such examples as illustrating fundamental principles.

117. Ericsson, *op. cit.*, pp. 217–8, which may be an elaboration of the general statement by Mundie (*op. cit.*, p. 11).

118. Walker Field, "A Reexamination into the Invention of the Balloon Frame," *Journal of the Society of Architectural Historians*, Vol. 2, No. 4 (October, 1942), pp. 3–29. Mundie (*op. cit.*, p. 11) also offers this analogy.

119. Mundie, *op. cit.*, pp. 11, 16, 27.

120. Ralph B. Peck, *History of Building Foundations in Chicago* (University of Illinois Engineering Experiment Station, Bulletin Series No. 373 [Urbana, Illinois, 1948]), p. 19.

121. Ericsson, *op. cit.*, pp. 62, 67–71, 216–8.

122. Mundie notes (*op. cit.*, p. 4) that Jenney was "an intense student and inveterate reader" with special interests in archaeology and metallurgy.

123. See nn. 100 and 101.

124. *Discourses on Architecture*, trans. Benjamin Bucknall (Boston, 1881), p. 128. Due to Jenney's command of French, he was not dependent on the English edition of this work. The claim of Leroy S. Buffington that he invented skyscraper construction after reading this passage in 1881 has been thoroughly discredited (Dimitri Tselos, "The Enigma of Buffington's Skyscraper," and Muriel B. Christison, "How Buffington Staked His Claim," *Art Bulletin*, Vol. 26, No. 1 [March, 1944], pp. 3–24).

125. Autobiographical statement and letters in Scrapbook (*Chicago Architectural Archives Project*, Microfilm Roll No. 11).

126. In 1868 the firm of Jenney, Schermerhorn, and Bogart laid out the new suburban town of Riverside, designed by Frederick Law Olmsted and Calvert Vaux. It also designed several city parks in west Chicago. In 1869 the firm of Loring and Jenney built Grace Episcopal Church.

127. The Portland Block had seven stories and the Lakeside Building six (Randall, *op. cit.*, pp. 62, 82; Mundie, *op. cit.*, pp. 13, 28–9).

128. Mundie, *op. cit.*, p. 27. The building was nicknamed "the conservatory."

129. *Ibid.*, p. 16. It should be noted that since 1879 the main office of the company in New York had been located at 117–119 Broadway, near Cedar Street, not many blocks from the McCullough and Tatham towers.

130. This hypothesis naturally raises two questions: first, why did not Bogardus' towers bear fruit on Manhattan itself? and second, why, if Johnson acted as catalyst, he did not stimulate Van Osdel to adopt Bogardus' construction? As to the second, the answer seems to be that Chicago's needs in 1856 had not yet exceeded the limits of traditional masonry structures and that Johnson himself at that time was preoccupied with selling iron fronts for such buildings. As to New York, the explanation apparently lies in the fact that the development of business properties was not constricted by land hunger, as in Chicago's Loop district, until the turn of the century.

THOMAS U. WALTER AND THE UNIVERSITY AT LEWISBURG

GEORGE L. HERSEY

I. Introduction

THOMAS U. WALTER'S elaborate design for Girard College, Philadelphia (1833–47), was criticized both on esthetic and functional grounds by a number of influential people.[1] Nevertheless, in 1848, the year after Girard College was completed, Walter undertook the design of another set of academic buildings, those of the new University at Lewisburg, Pa. (now Bucknell University)—without fee. The work remained in progress until 1859 though interrupted when Walter was called to Washington as a government architect in 1851.[2] His designs for the buildings were carried out, however, and in 1853 the architect was awarded an honorary degree by the grateful trustees.[3] This award may be considered the high-water mark of his dealings with that institution; our investigation will chart the ebbing of that tide.

II. Planning the University

Walter was probably the only architect in America who had been sent to Europe especially to study college architecture. Walter was also an active Baptist, which must have recommended him strongly to the trustees of this Baptist institution. A contemporary manuscript reports that "as a gift to the University of his faith, he had undertaken to draw plans for the buildings, and by occasional inspection to superintend their erection."[4]

The original scheme of the University was threefold: a preparatory academy, a college, and a female institute. Each of these was to be housed in a separate building. Early accounts also mention an observatory, and others (less reliable) divinity and law schools.[5] There still exists a set of specifications for the Academy Building,[6] and there is good evidence that Walter occasionally superintended its construction. We also know that he designed the College Building, though there is little doubt that the original design, as illustrated in contemporary engravings (Fig. 1), was changed in the actual building (Fig. 2). Similarly, the portico on the Academy Building shown in Fig. 1 was never built. The Academy Building was remodelled in 1890 and again in 1954, and the College Building survived until it was partially burned in 1932. It was completely rebuilt, except for the outer walls, in 1937.[7]

The first mention of Walter in the official papers of the University appears in the prefatory history written by Professor Stephen W. Taylor in 1849; here is recorded his appointment as University Architect and the acceptance by the trustees of his general plan.[8] Meanwhile, construction on the Academy had begun the previous winter.[9]

The minutes for the August, 1848, trustees' meeting suggest "taking the whole subject of University Buildings under advisement," and provide that the total cost of the University buildings shall not exceed fifty thousand dollars. This represents quite a change of pace for the architect, who had spent $2,000,000 on Girard.[10]

III. The Academy Building

The contract for this building was let to a local firm, and construction completed in the winter of 1848. Walter made at least one trip to the site of the Academy. Our manuscript tells of his trip from Philadelphia with a group of early professors, one of whom is quoted as follows:

> Our brief ride the next morning landed us at Lewisburg in little more than twenty-five hours from Philadelphia. I remember that as we came opposite the University, Mr. Walter raised himself out of his wraps and looked across the ice to see whether they had got the roof on the Academic Building (the erection of which he had been directing) at just the right angle. A glance sufficed him that they had.[11]

The Academy, like the rest of the buildings that were to go up, was of solid brick construction without much ornamental detail. It was oblong in plan, measuring fifty-one by seventy-five feet, three stories high, and facing northeast. Although the engraving in Fig. 1 shows four great columns or antae in a portico similar to that on the

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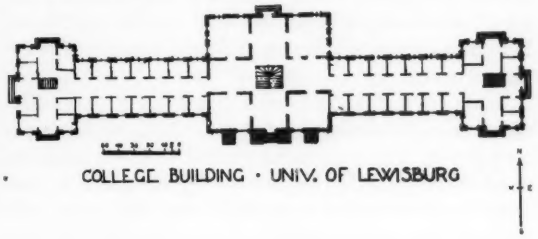
FIG. 1. University at Lewisburg, Pa. (Bucknell University). The College and Academy Buildings, *c.* 1856. (From the university catalogue of 1856–57. Courtesy Bucknell University Library)

FIG. 2. University at Lewisburg. The College Building as actually built. (From an old photograph. Courtesy Bucknell University)

FIG. 3. University at Lewisburg. The Academy Building. (From an old photograph. Courtesy Bucknell University)

FIG. 4. University at Lewisburg. Conjectural restoration of the College Building. Elevation. (Author)

FIG. 5. University at Lewisburg. Conjectural restoration of the College Building. Plan. (Author)



College Building, these, as was remarked above, were never built. A shallow Vitruvian pediment like the one in the engraving surmounted the pilasters that replaced this portico, however, and a white wooden entablature ran around the building (Fig. 3). There were entrances on all four sides. The north side of the building contained classrooms; on the south were teachers' living quarters and students' dormitory space. There were also a dining hall and rooms for literary societies. It was a simple and handsome building and still serves well though it has been extended and remodelled. But it was not to be considered alone; it was part of an over-all design, slightly down a slope on the west side of the projected College Building. It is interesting to speculate whether or not the Female Institute was intended to be placed similarly on the east side of the college to complete the symmetrical arrangement (Fig. 1).

IV. The College Building

By January 18, 1849, the trustees were ready to get started on the College Building which was to be the chief feature of the new campus.

Like Town and Davis's dormitory and chapel at Davidson College, North Carolina, Walter's elevation for the Lewisburg college showed a central portico flanked by wings. There are of course many other examples of this type of college design in nineteenth-century America. It was called the "French system" [12] and allowed the students private or semi-private bedrooms and studies.

The exterior of the new building as it was to look was

proudly displayed in catalogues and contemporary prints (Fig. 1). Using these drawings with the measurements published in the *Lewisburg Chronicle* at various times I have made a tentative reconstruction (Figs. 4 and 5). Like the Academy, the College Building was of English bond brick construction supported by massive rubble masonry foundations. The basement within these foundations consisted of a series of arcaded chambers with brick arches springing from sturdy stone piers. The tops of these arches bore the wooden floor joists of the first story. The original basement under part of the west wing is still standing, very much in the Greek Revival tradition of extremely solid and hopefully fireproof construction.

With their plain brick antae and simple white entablatures, both the Academy and the College Building constitute a reaction to the archaeological niceties of Girard College. That Walter had much more sympathy for the Greek spirit than for Greek archaeology is indicated when he wrote, six years before Girard was completed:

> The similarity which exists in modern adaptations of columnar architecture is as adverse to the spirit of classic art as it is tiresome and monotonous in its effects . . . the orthodoxy of architects in matters of taste seems to be estimated wholly by the accuracy with which *orders* and even whole *temples* are copied from the antique.[13]

From this I think we can infer that Nicholas Biddle, who had persuaded Walter to substitute a Corinthian temple for his original prize-winning scheme for Girard College,[14] was indeed a persuasive man and that the Lewisburg project was in a far more congenial *genre* than the Girard one.

In the original design for the College Building, as illustrated in an 1856 engraving (Fig. 1), the central bay was topped with a low pediment similar to the one on the Academy. Behind this was a two-stage parapet wall from which, in turn, rose a segmental dome. This dome was crowned with a lantern which I take to be modelled after the Choragic Monument of Lysicrates in Athens, that ever-popular Greek Revival device.

The central, three-story bay was flanked by wings 125 feet long and 35 feet deep, containing four floors of dormitory and study rooms. The ends of these wings were terminated by bays three windows wide (Fig. 2). At what point the large dome (Fig. 1) was sacrificed is not clear. In 1857, after Walter had left the scene, a new contractor took over to finish the central portion and east wing.[15] The trustees' minutes of July 28, 1857, mention that "the changes made in the plan of the Main Building by the architect will increase the cost of the buildings $1,100." It may be that these changes involved a rebuilding which would account for the contrast between the dome in Fig. 1 and that in Fig. 2. In defense of the trustees, it must be said that their minutes specifically stated that the new contractor use the original Walter plans.[16] The building cost considerably more than expected, and it may have been that in 1857 the trustees wrote to Walter asking him to supply a less expensive version of the dome and cupola. It may also be noted that the central bay itself was much higher in the early engravings than in the actually completed building (Fig. 2). In the earlier version, the ridges of the wing roofs met the central bay just below the architrave. In the actually completed building (though this is not discernible in Fig. 2) these ridges intersected the cornice. A further proof that the main bay was reduced in stature lies in the fact that if the Fig. 2 photograph is projected, in scale, so that the peak of the lantern is in the same plane as the front of the building, and the height of this point is measured, the distance equals 90 feet. The published measurements[17] state that the "point of the central portion is about 100 feet in height." This reduction would have made the top floor of the central portion approximately the same height as the two lower floors. But since the top floor housed the assembly hall, it seems logical that Walter should have desired a relatively higher ceiling in this room. The discrepancy on the exterior would have been masked by the entablature and parapet (Fig. 4). It may even have been that this was not a parapet at all, but the edge of a flat roof. In any case, the roof treatment in the engraving bears little resemblance to the octagonal drum and extremely low dome that was actually built, perched on the point of a hipped roof. Other discrepancies include the double—instead of single—windows at the outer ends of the central bay in the actual building, and also the chimneys or flues which prominently break the skyline in the photograph, but do not appear in the engravings. I think we can agree that a higher dome would have been desirable, upon examining Fig. 2, and noting that the ground slopes sharply away from this side of the building.

A description of the building appeared in the *Lewisburg Chronicle* on September 11, 1850:

> The main building is to be 80 feet square with wings 125 by 35 feet, presenting a front of 330 feet, and containing dormitories and study rooms for the accomodation of 200 students. The west wing is now under roof, and will be ready for use by the commencement of the fall term, with dormitories and studies for 70 students. When the magnificent edifice is completed, 400 [two hundred?] students can be conveniently accomodated. The Architect merits the thanks of the friends of this great enterprise, and for the pains he has taken in drawing plans, and having every room constructed in such a way as to be properly warmed and ventilated, in order to the promotion of the health of the students—and for all his trouble and expense he makes no charge. The wing, now under roof, will cost when completed about $12,000.

Walter's interest in proper heating and ventilation was indicated by the presence of ventilators over the terminal bays at the end of each wing (Fig. 2) and also by the

lantern itself, which in this as in other Greek revival buildings served the useful purpose of attracting warm air from the rooms below. The architect was advanced enough to heat the building with Chillson's Furnaces instead of fireplaces.[18]

For seven dollars and fifty cents a semester, a student at the University at Lewisburg got a private bedroom, furnished with an iron bedstead, a dresser and washbowl, plus the use (with one other student) of a study. How this study was furnished we do not know. The wings of the College Building were taken up with these suites, with the studies on the south and the bedrooms (each partitioned into two semi-private sleeping-spaces) on the north (Fig. 5).

The central portion had four large classrooms on the first two floors (Fig. 5), and the top floor, known as Commencement Hall, was one large room which served as a chapel-auditorium.

As soon as Walter's plans for the College Building were accepted, bidding was opened. Walter submitted his bid with the others. His bid of $38,000 was by far the lowest—in fact it was surprisingly low, considering the ambitious plans—and it was accepted. The first hint of a certain dissatisfaction on Walter's part came in a letter of May 15, 1849,[19] in which he indicated his willingness to make certain economies which would lower his bid to $35,000, but which also stipulated that from then on he would charge a five per cent fee. The architect also proposed to space out payments over the course of construction. The board demanded security that he finish the work and Walter, probably feeling that he was the one who was taking the risk, refused.[20] The board then unsuccessfully sought another builder.

The west wing was begun with Walter in charge some time before August, 1849, and was finished two years later at a cost of $12,000. At this point all work was stopped and Walter departed for Washington. Evidently the relations between the board and the architect had worn a bit thin during the past year or so. The minutes of April 17, 1855, reveal that Lewis Palmer, noted for his "gentlemanly conduct" had been chosen contractor. Later reports show that he finished construction in 1858, apparently without incident and, unlike Walter, without fee.[21]

But Walter did not completely lose touch with the progress of his college building, for it was not until 1857 that the $1,100 worth of changes previously mentioned was sent to the trustees. This figure, by the way, added to Lewis Palmer's bid of $34,000 for the central bay and east wing, plus the $12,000 that was the final cost of the west wing superintended by Walter, brought the total expenditures to $47,100. From this, one fact at least is clear: Walter would have lost in the neighborhood of $12,000 if he had stuck to his original contract. This consideration may have influenced him in his gradual loss of enthusiasm for the project.

V. Conclusion

That Walter had reason to feel dissatisfied with the Lewisburg project must be evident by now. But I think we can agree that he brought some of this unhappiness on himself. In 1848 he had offered to design and build a University without fee. The trustees duly accepted this offer and the first building, the Academy, went up smoothly enough. Walter, as we have seen, supervised its construction only occasionally, and cannot have been responsible either for the fact that the contractors' estimate was about 20 per cent too low or for the fact that shortly after it was built the structure settled badly and developed severe cracks. This may have put Walter in a bad light, but equally Walter must have been displeased with the idea of putting up the College Building by fits and starts, so to speak, as the trustees insisted it must. However, he planned an easy payment schedule,[22] proceeding upon the understanding that the work could be stopped after the west wing was up.

The trustees, on the other hand, must have been unhappy with Walter's decision to charge a five per cent fee to do work which he had originally agreed to do for nothing. Furthermore, his bid was suspiciously low; no other contractor had come anywhere near it.[23] A feeling of uneasiness may then have moved the trustees to cast about for another contractor. This, in turn, must have seemed high-handed to Walter. Work proceeded slowly, the trustees suspecting that someone was going to lose money and anxious that it should not be they. A difference of 25 per cent between estimate and final cost would probably show itself fairly early during the construction. Indeed, these suspicions had already been confirmed in the case of the Academy Building, which had been estimated at $6,500 and had actually cost $8,000, and the west wing of the College Building, which had been estimated at $10,000 and had apparently cost $12,000.[24]

Was Walter simply a bad cost estimator? This is doubtful, since he had done a good deal of contracting in connection with his architectural practice and had been brought up in the building trades. What is more likely, and more human, is that he hoped the trustees would be inspired by his ideas for an ambitious campus and consider the $38,000 a mere starting-point. Then when costs began to exceed his estimate, more money could be raised. This very thing had happened with the Academy Building. Thus, Walter could assure himself of a fine monumental collegiate group which would silence the criticism of the Girard project. It is logical to believe that, when Walter found that additional funds were not to be forthcoming and it became evident that the design would have to be pared down, he lost interest. When it turned out that even

with these economies the College Building would cost $12,000 more than he had said it would, he may have given the trustees reason to search about for a more "gentlemanly" contractor.

Walter may also have realized that the ability to withstand strong opposition is a necessary occupational trait in any designer. He had not shown such ability in his work at Girard College, nor had he persevered sufficiently with the Lewisburg trustees to see his original scheme through.

In 1857, the year he sent in the changed version of the College Building, Walter, together with William Strickland and A. J. Davis, refounded the American Institute of Architects, which worked for the recognition of architects as members of a profession quite separate from contracting. In Walter's case, we can well understand why he should wish such a distinction to be drawn.

BUCKNELL UNIVERSITY

1. See C. A. Herrick, *History of Girard College* (Philadelphia, 1935), pp. 20–21; also T. F. Hamlin, *Greek Revival Architecture in America* (New York, 1944), p. 83.
2. See W. S. Rusk, *William Strickland, Benjamin Henry Latrobe and Thomas U. Walter: the Classical Influence in Their Works* (Baltimore, 1933), pp. 20–21.
3. G. C. Mason, quoted in the *Journal* of the A. I. A., VIII, No. 5 (Nov. 1947), 229.
4. G. R. Bliss, "Early Days of Bucknell University." Unpublished MS owned by Dr. Lewis E. Theiss.
5. *College Herald,* May, 1870, p. 1. From an article entitled *History of the University,* "by an old resident."
6. In the Bucknell University Library.
7. Minutes of the Board of Trustees, Dec. 15, 1934, *et seq.*
8. *Ibid,* insert.
9. *Ibid.,* Feb. 1, 1848.
10. Herrick, *op. cit.,* p. 32.
11. Bliss, *op. cit.*
12. For a discussion see P. F. Norton, "Latrobe and Old West at Dickinson College," *Art Bulletin,* XXXIII (1951), 128.
13. *Journal* of the Franklin Institute, I (Series III) (July 1841), 11.
14. Herrick, *op cit.,* p. 5.
15. Minutes of the Board of Trustees, March 24, 1857, *et seq.*
16. *Ibid.*
17. *Lewisburg Chronicle,* March 28, 1849; see also issue of Jan. 31, 1849.
18. Minutes of the Board of Trustees, Aug. 16, 1853.
19. *Ibid.,* May 19, 1849.
20. *Ibid.*
21. *Ibid.,* July 27, 1858.
22. Letter from Walter to the Board of Trustees, May 15, 1849.
23. Minutes of the Board of Trustees, April 18, 1849.
24. *Ibid.,* August 24, 1849.

WHITMAN ON ARCHITECTURE

CHARLES R. METZGER

WALT WHITMAN, no less than Emerson, Greenough, and Thoreau, was interested in other arts than his own, and like them his interest was focussed in part upon architecture. American architecture, to Whitman's mind, was as legitimate a subject for poetic treatment, as much representative of the facts and the identity of America as its rivers, its teamsters, or its savants. In his "Notes and Fragments" he scribbled the suggestion for a "Poem of Architecture? The Carpenter's and Mason's Poem,"[1] which is fulfilled in part by his "Song of the Exposition" and his "Song of the Broad-Axe."

Whitman's comments in his prose writings regarding architecture support with clear and simple examples the emphasis which has often been ascribed to his poetics. Whitman descended to lower ground in discussing architecture. As is natural of poets, he considered language arts the highest. "To make a perfect composition in words," he said, "is more than to make the best building or machine, or the best statue, or picture. . . . It shall be the glory of the greatest master, to make perfect compositions in words."[2] In company with Emerson he considered the offices of painting and sculpture as no longer important to society. "I am not sure," he said, "but the day for conventional monuments, statues, memorials, &c., has pass'd away—and that they are henceforth superfluous and vulgar."[3] It would seem that "painting, sculpture, and [even] dramatic theatre, . . . no longer play an indispensable or even important part in the workings and mediumship of intellect, utility, or even high esthetics," but "architecture remains, doubtless with capacities, and a real future."[4] Regarding the state of current architecture, however, Whitman had some major reservations.

Whitman's criticism of current American architecture was ordered primarily by his ideas of simplicity, economy, and of prudence. Speaking particularly of Grace Church, New York, he objected to this concern in its architecture with displaying wealth—this at the expense of what is presumed to be the original, the fundamental intention of such architecture.

> The architecture of Grace Church [he wrote] is by superficial observers called beautiful. The proper word is not beautiful but showy.[5]
>
> Grace Church inside and out, is a showy piece of architecture, and the furnishing of the pews, the covering of the luxurious cushions, etc., appear to be unexceptionable, viewed with the eye of an upholsterer. The stainless marble, the columns, and curiously carved tracery, are so attractive that the unsophisticated ones of the congregation may well be pardoned if they pay more attention to the workmanship about them than to the preaching.[6]
>
> We don't see how it is possible for people to *worship God* there. It is a place where the world, and the world's traits, and the little petty passions and weaknesses of human nature, seem to be as broad blown and flush as upon the Exchange in Wall street, Broadway, or any mart of trade, of a week day.[7]

Whitman saw some evidence of mature attention in public architecture to its domestic or useful art functions. He saw also that American public architecture as a whole had a long way to go before it could begin to qualify as architecture.

> In Broadway grand edifices have become so much a matter of course that what would ten years ago have caused the greatest admiration and comment, is now altogether *passé*. Some of the most magnificent stores in the world are now on Broadway—with still greater to come. [But] with all these, among the elder buildings, only the Astor House, in its massive and simple elegance, stands as yet unsurpassed as a specimen of exquisite design and perfect proportion. It is thoroughly modern in its uses and appropriateness to its purpose, but classic and severe as a Greek temple.[8]

Whitman objected less to Greek architecture than to the unconsidered borrowing of Greek forms without attention to Greek principles. Thus he observed:

> The Savings Bank in Bleeker street just east of Broadway is Grecian, of the most ornamental and florid order. It is a wonderful and lovely edifice. But the *surroundings*, (the Greeks always had reference to these,) are enough to spoil it—let alone the discordant idea of a Greek temple, (very likely to Venus) for a modern Savings Bank![9]
>
> Such considerations as these make one laugh at the architecture of the New York Custom House, with its white sides and its mighty fluted pillars. In the original some twenty-three or five hundred years ago, when Socrates wandered the streets of Athens talking with young men, . . . there stood the original, the temple of the ideal goddess, the learned, brave, and chaste Minerva. It was of immense extent, and was manly, a simple roof supported by columns. There were performed the rites—in that city and among that people, they and the building belonged. And to that the United States government has gone back and brought down (a miniature of it,) to modern America in

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Wall street, amid these people these years, for a place to settle our finances and tariffs. How amusing! [10]

Whitman concluded that "at the present, few persons pay any attention to architecture in its higher planes, its philosophy, its reference to all other things, few have any profound idea of beauty in a building." [11] True beauty, in building as in poetry, Whitman considered the result of simple, candid expression of the facts and purports of the structure, of its site, its materials, its intended functions—the consideration of these ordered always by Whitman's conception of democracy. Thus, even as he was concerned with the nature of words as things, as the raw stuff of poetry representing by indirections the facts of American experience, Whitman was concerned also with the nature of building materials as the raw stuff of architectural expression, representing likewise the facts of American experience. In referring to the Crystal Palace, he celebrated the increasing use of iron and glass, a use which was more representative of modern society to his mind than feudal stone: "Iron and glass are going to enter more largely into the composition of buildings. . . . So far iron used in large edifices is a perfect success." [12]

In architecture as in poetry Whitman saw beauty resulting from proper expression achieved not only by attention to facts—to the materials and environs of the work, to the facts of human identity, of its context—but also by attention to the efficient fulfillment of functions. Whitman saw the finest current expression of architectural functions, not in America's public architecture, but in its naval architecture. "The huge hull'd clean-shap'd New York Clipper," he said, "at sea under steam or full sail gleams with unmatched beauty. . . ." [13]

Whitman was concerned primarily with considerations of function in architecture ashore as applied to domestic rather than to public building. He was concerned with the degree to which the citizen's urban or suburban box contributed to the realization of democracy. Whitman questioned the morality implicit in current standards of American dwelling-house architecture, particularly in large cities. Unlike Thoreau, Whitman did not suggest withdrawal from society to cabins in the woods (or housekeeping in the section hand's tool box), but rather he proposed the construction in congested areas of tenement flats, and the development in suburban areas of such modestly priced housing as very likely he had helped to erect in Brooklyn. Whitman was concerned with the functions of American architecture in both social and religious senses, and encompassed thereby the consideration of architecture not only in contributing to the salvation of the individual soul, but to that of society as well. Whitman charged that America's domestic architecture was too costly, and for that reason immoral. He blamed this condition upon the current preoccupation in America (in New York City at any rate) with the acquisition of wealth and with its ostentatious display. In a long newspaper article he objected to what he called "Wicked Architecture." Such architecture was

> not wicked in carelessness of material construction, like the crumbly structures sometimes run up in our city by mercenary builders, that prove death-traps to the inmates; not in purpose, like an Inquisition or a panel-thief's haunt; but in the uprighteous spirit of ostentation that unconsciously directs it, and in the manifold and frightful social evils following from it. . . .
>
> It may not at first appear that the architecture of New York has any very distinct connection with anything good or evil. But there *is* a connection, and one startlingly close and efficient. The domestic architecture—the dwelling-house architecture—of the city (for our Architectural Wickedness exists mainly there), even though perhaps not absolutely in itself the efficient cause of evil, is the most striking type of that condition of social morality which is the fertile hot-bed for evils the most enormous. [14]

Whitman considered New York dwelling-house architecture to be wicked (which is to say inimical to the realization of his idea of democracy) because it did not provide adequately for the proper functioning of the family of modest means. He considered a spacious, well-lighted, well-ventilated dwelling suitable for family living to be one of the three fundamental material necessities prerequisite to the higher consideration and development of democracy—i.e., of the individual American's identity: "A house to live in is the third great necessity [of life]; food and clothing being before it. . . . Furthermore it is in some sense true that a man is not a whole and complete man unless he owns a house and the ground it stands on." [15]

The greater proportion of domestic architecture in New York to Whitman's mind was inadequate (i.e., wicked) by reason of the high cost of real estate, and of the undemocratic, the ostentatious, way of thinking by those building houses there: "In New York, closed in by rivers, pressing desperately toward the business center at its southern end, and characterized by an unparalleled fierceness in money chasing, land is dear. This of course makes the possession of it a basis for an increased ostentation of it; for the dearer a thing is, the more pride in showing it." [16] The building of large, ostentatious dwellings by rich and ostentatious persons would not lead to wicked consequences, argued Whitman, if it were not for the fact that the "ways of thinking, throughout society are more or less formed on the patterns set by the rich." Unfortunately, said Whitman, "it may be stated, as a general principle, that in New York city, among all ranks, except the poorest, there is a habit of occupying houses outrageously and absurdly too expensive, whether in prime cost or in rent, for the resources of the occupant." [17] The wicked consequences traceable directly to such a habit were those inherent in the boarding-house or rooming-house existence,

caused jointly by the need of the owner or renter of moderate means to sub-let, and by the need of families of even smaller means for inexpensive dwelling space, however inadequate. And "what is this boarding house life?"

> Simply a place to keep a man's trunk and his wife while he is at work, and where he has breakfast, tea, and sleeping room. All day long, these thousands and thousands of wives, many of them with their children, are left alone, without responsibility, with little or no employment; . . . they spin street yarns in Broadway; shop; dine at Taylor's or Thompson's; make calls; talk scandal; sleep. There is no chance for the gathering of the wretched husband's family.[18]

By way of achieving a kind of domestic architecture appropriate to the needs of a democratic, urban society, Whitman advanced two relatively simple plans. These plans, he admitted, were not to be considered as over-all solutions to the problem. "Of whatever remedies are applicable to this state of things," he wrote, "many are too profound and remote even to be stated in a newspaper article."[19] By way of practical suggestion for the immediate relief from some of the wickedness, however, he suggested for metropolitan areas in which property was very expensive

> the erection of tenement-houses, so arranged that each floor is a complete isolated habitation by itself. . . . Such tenements judiciously located and handsomely furnished, could be rented at reasonable rates; would restore to many of the 'married bachelors' a place for their household goods, a home and hearth of their own . . .; would furnish the unoccupied minds and listless bodies of their wives with the stimulus and responsibilities which they need, and which God meant for them: and last—and least—yet most necessary of all, could, as may be demonstrated, yield a remunerative percentage on the investment of the capitalist.[20]

Better still, as a means of eliminating the consequences of boarding-house living, Whitman suggested the encouragement of low-cost, suburban housing construction similar to that in Brooklyn. Indeed, "our architectural greatness" consists not in the mansions of Manhattan, but "in the hundreds and thousands of superb private dwellings, for the comfort and luxury of the great body of middle class people—a kind of architecture unknown until comparative [ly] late times, and no where known to such an extent as in Brooklyn."[21] Whitman saw the validity of such a scheme of domestic architecture attested by the increasing growth of Brooklyn: "Perhaps the principal reason after all of the unprecedented growth of Brooklyn in population is to be found in the fact that here men of moderate means may find homes at a moderate rent, whereas in New York there 'is no medium' between a palatial mansion and a dilapidated hovel."[22] In such a community as Brooklyn "men of moderate means, living say at the rate of a thousand dollars a year or thereabouts" can live decently. "These men, comprising the most valuable class in any community . . . cannot afford to consume their salaries in paying house rent as they would inevitably be forced to do in New York if they wished to live in a respectable neighborhood, . . . Property owners will, we think, find their account in erecting just such a class of buildings. There is a popular demand for them and nothing else will suit the people."[23] Indeed, the voicing of an effective popular demand for appropriate dwelling-houses, rather than a retreat to even more primitive living accommodations, as in Walden, was Whitman's recommendation for combatting the general wickedness of American domestic architecture.

Nevertheless Whitman's attitude toward architecture was in the long run not unlike Thoreau's. For despite Whitman's concern with public architecture, despite his sympathetic interest in machinery, with building materials, the fact remains that Whitman, like Thoreau, was more concerned with the salvation of the soul via architecture, than with the salvation of architecture *per se*. In this particular respect at any rate, Whitman appears as something like an urban, social, Quaker version of Thoreau.

PORTLAND STATE COLLEGE

1. *The Complete Writings of Walt Whitman*, ed. by Richard Maurice Bucke, Thomas B. Horned, and Horace L. Traubel (New York: G. P. Putnam's Sons, 1902), X, 24.
2. *An American Primer*, ed. Horace Traubel (Boston: Small, Maynard and Co., 1904), p. 28.
3. *Writings*, V, 295.
4. *Ibid.*, p. 57
5. *The Gathering of the Forces*, eds. Cleveland Rodgers and John Black (New York: G. P. Putnam's Sons, 1920), II, 94.
6. *Ibid.*, p. 91.
7. *Ibid.*, p. 95.
8. *I Sit and Look Out*, eds. Emory Holloway and Vernolian Schwarts (New York: Columbia University Press, 1932), p. 128.
9. *Ibid.*
10. *Ibid.*, p. 129.
11. *Ibid.*
12. *Ibid.* Speaking with reference to the uses of new architectural materials as bearing even upon the words, the materials of poetry, Whitman had announced that: "If iron architecture comes in vogue, as it seems to be coming, words are wanted to stand for all about iron architecture . . .—those blocks of buildings, seven stories high, with light strong façades, and girders that will not crumble a mite in a thousand years" (*An American Primer, op. cit.*, p. 8).
13. *Writings*, V, 176.
14. "Wicked Architecture," *Walt Whitman, Complete Poetry and Selected Prose and Letters*, ed. Emory Holloway (London: The Nonesuch Press, 1938), p. 607.
15. *Ibid.*
16. *Ibid.*
17. *Ibid.*, p. 608.
18. *Ibid.*, p. 611.
19. *Ibid.*, p. 612.
20. *Ibid.*
21. *Uncollected Poetry and Prose of Walt Whitman*, ed. Emory Holloway (New York: Columbia University Press, 1921), p. 253.
22. *I Sit and Look Out, op. cit.*, p. 145.
23. *Ibid.*

AMERICAN NOTES

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ROBERT CARY LONG, JR., AND THE BATTLE OF STYLES

By WILBUR H. HUNTER, Jr.
The Peale Museum, Baltimore, Md.

In 1844 the Sessions Committee of a newly formed Presbyterian congregation in Baltimore was faced with a choice of architectural styles for its proposed church. For thirty-nine years the church builders of Baltimore had followed the lead of Bishop John Carroll who had selected Benjamin H. Latrobe's classical design for the cathedral rather than the alternate Gothic design.[1] There had been only two exceptions to this Classical Revival fashion, Maximilien Godefroy's Gothic chapel for St. Mary's Seminary in 1806,[2] and the Gothic St. Alphonsus' Church of 1842.[3] It is significant, however, that both buildings were sponsored by recent immigrants. The Sulpician fathers of St. Mary's were émigrés of 1795, and the Redemptorist fathers of St. Alphonsus came from Germany in 1840.

A young Baltimore architect, Robert Cary Long, Jr., (1810–1849) was prepared and eager to change all this. As in the case of William Strickland, his father had been a master carpenter who "had found time amidst a close attention to business to store his mind, naturally strong and clear, with scientific information which qualified him to be a most valuable architect . . ."[4] Long, Sr., indeed merits the title of architect, having produced a number of good buildings, among them The Peale Museum, but he was wholly in the classical tradition. His son was sent off to study with a New York architect, Martin Euclid Thompson, and was thereby brought into contact with newer ideas.

Young Long learned his trade well, and apparently other aspects of the liberal arts, too, for he was later commended for "his attainments as a classical scholar and linguist." Little is known of this part of his life, but it is very likely that he knew and used the extensive architectural library of Ithiel Town, and saw the latest works of A.J. Davis and others who were breaking new ground in architectural style. The father died in 1833 and the young man hurried back to Baltimore to carry on his own career.

His first job was the Christ Protestant Episcopal Church in 1834 (now gone), a small Greek temple with some Palladianesque detail, and he was associated with some other buildings of the same type. One suspects that in these cases he was completing commitments to his father, for in 1836 he offered something radically different, an Egyptian design for a proposed City and County Record Office which undoubtedly came out of his copy of Denon's *Travels in Lower Egypt*.[5] A far simpler building was actually built, but at least he had made his break. Seven or eight years later he proposed an Egyptian design for the gateway to the new Greenmount Cemetery, but this was not built either (Fig. 1). His success was to be in another direction.

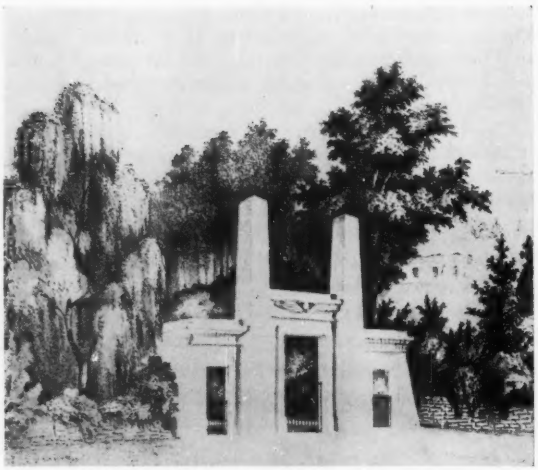

FIG. 1. "Proposed Gateway to Greenmount Cemetery," R. C. Long del., c. 1845. (Detail of engraving)

While Long knew the Gothic mode from his studies, his first close connection with it came in 1840 when he was chosen to add the tower to Godefroy's St. Mary's Chapel. The tower was demolished about 1900, but the rather poor photographs of it indicate that he treated Godefroy's design freely—perhaps he was conscious of the "incorrectness" of the early scheme. But now a real commission came his way. The St. Alphonsus' Roman Catholic parish selected him to do their new church in 1842. The congregation was largely German born, and the services would be in the mother tongue. The church was also partly financed by contributions from Austria, Germany and France, and it is said that the King of Bavaria gave $4,000 towards it. Whether this is the reason or not, Long was given a free hand to use the Gothic style.[6]

St. Alphonsus' shows us immediately the source of his knowledge. It is a simple box-like building surmounted by a square tower in two stages. (The spire may have been in the original design but it was added in 1854 by another man). It stands squarely on the corner and fills its lot. Beyond a doubt, the ornamental detail is out of A. C. Pugin's *Specimens of Gothic Architecture*. If Long had done nothing else, this would not have given him a very high place among the architects of his period, but it was a beginning, the first Gothic Revival church in Baltimore.

But the battle between the older and the newer styles

was not yet won. Even as work started on St. Alphonsus', Long was commissioned by Father McColgan in another parish of the diocese to design the very antithesis of this church—a correctly Greek Doric temple. St. Peter's Church (Fig. 2) was a handsome building but neither more nor less than a perfectly good example of archaeology. No doubt Long was familiar with similar works by Town

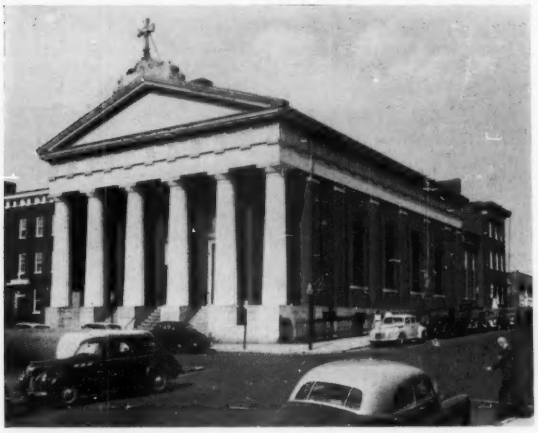

Fig. 2. Baltimore. St. Peter's R. C. Church, 1843. (Author)

and Davis, and William Strickland and others, and probably possessed the necessary books to draw from, but under the ground rules of this game it was as far as he could go.

No wonder then that Long submitted something quite different in the competition for the proposed Presbyterian Church in the summer of 1844—but the rest of the story is better told in the minutes of the meetings of the Sessions Committee:

A Meeting was held on the Evening of the 26th August 1844 at the residence of the Revd. Jno. C. Backus Present Messrs. Murdoch, James, George, Schaeffer, Campbell, Taylor, Foreman, Bently, Bigham, Backus and Gibson.
Plans, Drawings and Estimates were submitted by Messrs. Minifie, Harris, Le Brun, and Robt. Carey Long. After due Examination and a deliberate discussion of the subject, it was unanimously
RESOLVED That in proceeding to Erect the Contemplated Church at the corner of Franklin and Cathedral Streets, the Committee decide upon Employing an Architect
RESOLVED (also unanimously) That Robt. C. Long be the Architect.

. . . . . .

The sense of the Committee being taken by a *viva voce* vote as to the Style of Architecture to be adopted, it was decided in favor of the Gothic.
The meeting then adjourned.

* * * * *

30th August 1844 A Meeting was held at the residence of the Revd. Mr. Backus

. . . . . .

Mr. Robt. C. Long met with the Committee and explained at length the plan of the Church in the Gothic Style submitted by him. He also in reply to the inquiries of several members of the Committee made it appear that altho' a Church in the Grecian Style might be erected at a less cost than the Gothic, yet to have it completed in the same durable and substantial manner with the Gothic its cost would be equal if not greater.
Mr. Long having retired, the matter was further discussed when on a motion by Dr. Gibson it was unanimously RESOLVED That the plan submitted by Mr. Long be adopted. . . .

And there it was, neatly and finally, the end of an era. The deliberate vote of the Sessions Committee of the new congregation unwittingly expressed a city-wide reversal of taste for it is the improbable fact that not another sizable church was built in Baltimore in the Classical Revival mode—at any rate, not until the revival of the Revival in the early 20th century. As proof of the judgement of the committee, in 1844 and 1845 Long was commissioned to build four other churches, all in the Gothic style!

The story of the actual building follows a familiar pattern, with some interesting details. Long accepted the commission "At the usual rate of 5 pr cent upon the cost of the building deducting one fourth of his Commission in consideration of its being a Church." The Committee had little money but expected to raise the estimated $14,000 for the lot and $28,000 for the building by selling pew space. Through the further minutes of the Committee there is much deliberation on purchasing brick and stone, and other things, and the taking of bids, such as that for painting the exterior "with sand" or "without sand." George I. Roach was given the contract to paint the church "and sand it on two sides," apparently as a compromise. An organ was purchased from Mr. Erben of New York for $2500 on twelve months credit. Mr. Cornell was hired to carve the woodwork, and after mature discussion the committee resolved that "the 4 leaf'd Cap be taken at $1.75," that is, a four leafed crocket for the pew ends.

But difficulties arose. Early in 1845 a sub-committee was appointed to wait upon Long and "represent to him the loss which will be sustained in consequence of his delay in not furnishing drawings for window frames &c." It was becoming clear that the cost would surpass the estimates. In 1847 the Committee congratulated Mr. Cornell for his splendid woodwork and made him a present of a pew "of the value of $200," but they were not happy with Long. The matter came to a head in February, 1848, when Long's attorney presented a demand for full payment of the architect's fee. Testily, the Committee reviewed the history of the construction and protested formally "That from the dilatoriness of the Architect causing an accumulation of interest—and erroneous estimates and alterations of original plan the Church has cost much more than expected . . . ," in fact, $10,000 more, and they didn't know where

to find the money for Long. In exasperation, the architect agreed to accept a note for the amount due, providing it was personally endorsed by one of the committee members, and that was that.

Long was anxious to conclude the affair because some time in 1847 he had decided to move his operations to New York. He was clearly on the verge of a successful

FIG. 3. Baltimore. Franklin Street Presbyterian Church, 1844. (Alexis L. Pierson)

career. There were a dozen churches and public buildings to his credit in Maryland, and several country houses—the complete list is still unknown. Moreover, his scholarly bent had drawn attention. He had published a curious pamphlet which purported to show connections between Egyptian and Mayan architecture, and written a series of articles for the New York *Literary World*. There is evidence that the trustees of the Astor Library had asked him to design their building. But all of this promise was shattered when he contracted cholera and died in July of 1849. The Franklin Street Presbyterian Church was to be his masterpiece after all (Fig. 3).

In assessing the quality of this church, a casual glance at the plates in *Specimens of Gothic Architecture* by A. C. Pugin (and continued by A. W. N. Pugin) will show where he found his details. For instance, the main doorway is apparently a composite of two side-by-side plates of doorways at St. George's Chapel, Windsor.[7] The large window seems to be a copy of the south window, Westminster Hall, London;[8] the octagonal towers and peaked gable from King's College Chapel, Cambridge; and so on.[9]

Yet the ensemble is not from a plate, but is a personal composition by a gifted young architect. One must consider the surroundings to appreciate the strength of this church. Franklin and Cathedral Streets are heavily travelled one-way arteries; the church sits on the northwest corner. The southwest corner is occupied by the huge neo-classic Enoch Pratt Free Library of 1929. Near the southeast corner and dominating the scene is Benjamin H. Latrobe's great Catholic Cathedral. The northeast corner holds an eight-story Y.M.C.A. in the 1900 style of an Italian Renaissance palace, and less than a block away is Maximilien Godefroy's powerful Unitarian Church of 1819. For all of that, Long's modest church more than holds its own as a fine representative of the contrasting Gothic tradition.

1. R. H. Howland and E. P. Spencer, *The Architecture of Baltimore* (Baltimore, The Johns Hopkins Press, 1953), Plates for both, p. 70, text pp. 47–49.
2. *Op. cit.*, pp. 64, 65.
3. *Op. cit.*, p. 129.
4. Baltimore *American*, February 23, 1833 (obituary). For his work see Howland and Spencer, pp. 54–59 and illustrations pp. 78–80.
5. Howland and Spencer, p. 126 for both.
6. *Ibid.*, p. 129.
7. In the reprinted edition of A. and A. W. Pugin, *Gothic Architecture* (Cleveland, 1927) from the original editions, 1821–1838), Plate 50.
8. *Op. cit.*, Plate 34.
9. *Op. cit.*, Plate 105.

NAPOLEON LE BRUN, 1821–1901

It is interesting to find in Mr. Hunter's essay that one of the competing designs for the Franklin Street Presbyterian Church was submitted by a young out-of-town architect named Napoleon LeBrun. According to Joseph Jackson, *Early Philadelphia Architects and Engineers* (Philadelphia, 1923), pp. 231–247, LeBrun was born in Philadelphia in 1821 and trained in Thomas U. Walter's office. He completed an imposing new front for the Eighth Presbyterian Church the year before the Baltimore design (it stood a few doors from where we live on Spruce Street). In Philadelphia his best known buildings are the Roman Catholic Cathedral on Logan Square and the splendid Academy of Music at Broad and Locust. The latter, built just one hundred years ago, is about to be renovated for its centennial anniversary. We are glad to see that the work is in the sympathetic hands of Sydney E. Martin and Philip Johnson, both of SAH.

HABS NEWS

On the way to press we learn that President Eisenhower's budget submitted to Congress includes $139,265 for continuing the Historic American Buildings Survey, which has lain relatively dormant for lack of funds since Pearl Harbor.

Our own James Grote Van Derpool of New York City, Bertram K. Little of Boston and Paul Thirty, F.A.I.A., of Seattle, have recently been appointed to the HABS Advisory Board.

BOOKS

PAUL F. NORTON, *Editor*
The Pennsylvania State University

Arthur Voyce, *The Moscow Kremlin. Its History, Architecture, and Art Treasures* (Berkeley: University of California Press, 1954), 147 pp., 111 plates. $10.00.

Today the Kremlin is a household word of somewhat ominous connotation. It is timely, therefore, to remind the public that the Kremlin, whether or not it is a den of iniquity, is also an architectural ensemble of considerable interest. Until now, the Western reader who wished to inform himself about the Acropolis of the Muscovite state had to consult either the general histories of Russian art, or such out-of-the-way books as S. Bartenev's *Guide to the Great Kremlin Palace* (Moscow, 1914) or G. K. Loukomski's *Le Kreml de Moscou* (Paris, no date), the latter being little more than an album of photographs. The fundamental works concerning the Kremlin, foremost among them Bartenev's bulky *Moskovskij Kreml' v starinu i teper'* (2 vols.; Moscow, 1912–16; not St. Petersburg 1912–18, as Mr. Voyce has it), have been, naturally enough, in Russian. The appearance of an English monograph is, therefore, welcome, even if it is not everything that might have been desired.

The presentation of the book is excellent. The numerous plates, three of them in colour, are handsomely reproduced, nor is Mr. Voyce to be blamed if they are somewhat antiquated, the bulk of them being of pre-revolutionary vintage. At the present moment it may be easier to obtain illustrative material from Russia, but at the time Mr. Voyce was preparing his book the cultural *détente* had not yet set in. The older drawings, especially those taken from the monumental *Antiquities of the Russian State* (*Drevnosti rossijskago gosudarstva*, Moscow, 1849–53), have, moreover, a peculiar charm.

The text opens with a brief survey of the site and historical background, and then goes on to describe the fortifications, churches, palaces, the art collections of the Patriarchal Vestry and the Armoury (Oružejnaja Palata), and finally the Red Square with its fantastic cathedral of St. Basil. Mr. Voyce is, I think, guilty of overstating both the antiquity of the Kremlin and its significance for the study of mediaeval Russian art. In point of fact, nothing remains of the mediaeval Kremlin. The original church of the Saviour in the Wood (Spas na Boru; 1330), which Mr. Voyce represents as still standing, has been pulled down, so that the oldest buildings in the Kremlin are those erected by Italian architects at the end of the 15th century, to wit the Cathedral of the Dormition (1475–79) by Aristotele Fieravanti, what remains of the original walls and towers (1485–1516), and the Faceted Palace (1487–91) by Pietro Antonio Solario and Marco Ruffo, as well as the Cathedral of the Annunciation (1484–89) built by Russian architects. The original fortifications were entirely Italian in appearance; as for the eccentric caps of the towers, they were not added until the 17th century, and many of them are the work of foreigners, from Christopher Galloway (not Halloway), who built the top of the Saviour's Tower (1624–25), to Carlo Rossi, Beauvais and Gilardi who rebuilt the Nikol' skaja, Vodovozvodskaja, Petrovskaja and First Bezymjannaja towers in the Napoleonic era. If the towers, with their strange medley of Gothic, Renaissance, Russian, Tartar and Empire styles, are mainly a curiosity, the churches of the Kremlin reflect a momentous architectural trend, which has not, I believe, been brought out with sufficient clarity by Mr. Voyce.

In an abbreviated form, the churches of the Kremlin do indeed tell the tale of Muscovite architecture in its most interesting phase. We can see in the Cathedral of the Annunciation how Moscow, as in its dynastic claims, so also in architecture, drew on the past of Vladimir. We can see the important technical innovations introduced by Fieravanti, and the happy blending in the Cathedral of the Dormition of old Russian forms with the spirit of the Renaissance. We can see in the incongruous scallop-shells and scrolls of St. Michael's Cathedral the inevitable clash between the Italian and the Byzantine architectural conceptions. One could imagine that from roughly 1510 onwards the influence of the Renaissance would affirm itself more and more; yet that is precisely what did not happen. Renaissance ideas did not prevail in 16th century Russian architecture, since there was no basis for them. Instead, alongside the monotonous perpetuation of the five-dome formula, there suddenly appeared a bizarre national style. In its developed form, it confronts us in St. Basil's Cathedral on the Red Square, "the dream of a demented mind," as Hendrik Van Loon calls it. This new style, whose hallmark is a steep tent-like roof of masonry, has no known antecedents. Mr. Voyce takes the usual view, first propounded by Zabelin in 1878, that the tent roof (*šater*) was a borrowing from wooden architecture; that may be so, but the problem is considerably more complicated, since the earliest well-authenticated reference to a wooden tent in religious architecture dates from 1560, the very year when St. Basil's was completed. Mr. Voyce rightly points to the church of St. John the Precursor at D'jakovo as bearing a marked resemblance to St. Basil's; that church, however, was built not in 1529, as he holds, but probably in 1553–54, and is, therefore, practically contemporary with St. Basil's (1554–60). He does not, on the other hand, mention the significant church of the Ascension at Kolomenskoe (1530–32), where the tent roof appears for the first time.

Mr. Voyce shows little appreciation of the Byzantine tradition, which he calls stifling, in spite of the fact that it inspired the greatest achievements of Russian art, and blended so happily with local trends. Furthermore, he consistently misspells Greek words and names: Theophanos instead of Theophanes, autokratos instead of autocrator, acathyst instead of acathist, astericos instead of asteriscos, panagiia instead of panagia, Palaeologue instead of Palaeologus. There are many other inaccuracies. The 15th century Transfiguration from the church of the Saviour in the Wood is an icon (now in the Oružejnaja Palata), not a mural, as the author appears to be saying (pp. 67–68). Which are the works of Theophanes the Greek and Andrej Rublev discovered under coatings of cement in the Dormition Cathedral (p. 104)? In what way is the interior of the Dormition Cathedral "approximately similar to that of St. Mark's in Venice" (p. 35)? The carvings on the royal baldachin in the same cathedral represent the exploits of Vladimir Monomakh, not those of an "unidentified ancient Russian prince" (p. 38). Bono's tower that forms part of the belfry of Ivan Velikij was built in 1505–8, not in 1532–43 (p. 42); the latter dates refer to the additions of another Italian architect known as Petrok Malyj. The order of the footnotes on p. 134 appears to have been confused. What is the influence of Roman (Romanesque?) art on the art of Novgorod (p. 71), and why quote the completely outdated views of Viollet-le-Duc on the origins of Russian art? The bibliography has some obvious gaps: the works of Brunov, A. I. Nekrasov's survey of ancient Russian architecture (*Očerki po istorii drevnerusskogo zodčestva XI–XVII veka*, Moscow, 1936), V. L. Snegirev's books on Fieravanti (1935) and St. Basil's Cathedral (1953), to name only a few, should have been included.

The book under review is not likely to satisfy the scholar. Less exacting art-lovers, on the other hand, may learn something from it and enjoy the illustrations.

CYRIL MANGO
Dumbarton Oaks
Harvard University

Alan Gowans, *Church Architecture in New France* (New Brunswick: Rutgers University Press, 1955), 162 pp., illus. $8.00.

The steep roofed and spired church is the conspicuous and picturesque feature of the French Canadian landscape. The mass of such buildings looms large over the little towns along the St. Lawrence and the houses cluster around them the way the houses cluster around the great cathedrals of the medieval towns of Europe. There is a great similarity in all these churches, and in this scholarly work Mr. Gowans traces their development back to the beginnings of New France and finally seeks prototypes in France itself. The tradition which produced these interesting structures is continuous and the author carefully documents the influences under which it developed. His study is based entirely on churches actually erected in Canada under the French regime, and of these,

few examples survive. The study is therefore dependent almost entirely on documentary evidence.

Most of the churches constructed during the course of the French regime were destroyed during the Seven Years' War which resulted in the loss of Canada by France to England. Of the few which survived this disastrous and destructive conflict, the greater part were subsequently destroyed by fire or deliberately demolished to be replaced by more "modern" buildings. The considerable amount of illustrative material included in the book has therefore been compiled from old drawings, prints, and engravings and from old photographs taken since the advent of photography of examples which have since disappeared. Among the most fascinating of the illustrations is the series of engravings made from the drawings of Richard Short, a naval officer who accompanied General Wolfe against Quebec in 1759 and entered the city with the occupying forces. His "on the spot" drawings of the conquered capital depict its most important landmarks and were engraved and published in London in 1761.

Mr. Gowans begins his study with the "Heroic Age," from the time of the foundation of Quebec by Champlain in 1608. From this first fifty-seven years of French settlement nothing remains, but the author vividly re-creates a picture of the era from contemporary literary and documentary sources. He describes the simple frame structures of the period, the mission chapels of stakes driven in the ground and roofed with bark, the same form of construction used by the French in the settlement of the Mississippi valley nearly a century later. To reconstruct the parish church of the period an interesting building contract for building a church at Trois Rivières, dated June 24, 1649, is given in its entirety, and extensive quotations are given from other building contracts.

In the year 1665 Canada entered a new phase of its development and the churches built from that year until 1700 under Bishop Laval reflect the growing stability and importance of the colony. Even from this later period, little remains, but the foundations of the distinctive style of the Canadian church was solidly laid and carried on as long as Canada remained French.

In tracing the architectural development of these interesting old churches, the author has also presented a fascinating history of Canada as well. The book is magnificently documented, with copious footnotes, many of which however might better have been incorporated in the text. It is surprising that with the completeness of the documentation only Canadian sources are cited, whereas much material on the subject undoubtedly exists in French archives. The work concludes with a remarkably thorough "Catalogue Raisonné" listing the churches of New France from 1615 to 1760.

While the book will be of particular interest to the architectural historian, especially to those having an interest in French developments in America, it will also be of considerable general interest because of the vivid picture its presents of social conditions and cultural development. *Church Architecture in New France* is a valuable contribution to architectural history and a basic reference work in its field.

SAMUEL WILSON, JR., F.A.I.A.
New Orleans, Louisiana

BOOKS RECEIVED

(Mention of a book here does not preclude its subsequent review.)

Douglas Baylis and Joan Parry, *California Houses of Gordon Drake* (New York: Reinhold Pub. Corp., 1956). $6.50.

A book of good photographs with appropriate comments by close associates of architect Gordon Drake. He lived to be only thirty-four, but Drake had designed and built many residences in wood before his untimely death. The houses are freely planned with open vistas often broken at intervals by screens in the Japanese manner.

T. H. B. Burrough, *South German Baroque* (London: Alec Tiranti Ltd., 1956). 18s.

Miguel Covarrubias, *Mezcala, Ancient Mexican Sculpture* (New York: Wittenborn Inc., distributors, 1956). $1.50.

Erwin R. Goodenough, *Jewish Symbols in the Greco-Roman Period*, Vols. V, VI (New York: Pantheon Books, 1956).

Carroll L. V. Meeks, *The Railroad Station* (New Haven: Yale University Press, 1956). $7.50.

Stamo Papadaki, *Oscar Niemeyer: Works in Progress* (New York: Reinhold Pub. Corp., 1956). $10.00.

John Szarkowski, *The Idea of Louis Sullivan* (Minneapolis: University of Minnesota Press, 1956). $10.00.

Otto von Simson, *The Gothic Cathedral*, Bollingen Series XLVIII (New York: Pantheon Books, 1956). $6.50.

Geoffrey Webb, *Architecture in Britain, The Middle Ages* (Baltimore: Penguin Books, 1956). $10.00.

Margaret Whinney and Oliver Millar, *English Art, 1625–1714, The Oxford History of English Art*, Vol. VIII (Oxford: Oxford University Press, 1957). $11.50.

Robert Winkler (ed.), *Architect's Homes* (New York: Reinhold Pub. Corp., 1956). $10.00.

An interesting collection of excellent photographs, both interior and exterior views, displaying the freedom one would expect to find in show pieces. Perhaps the most exciting to the modern eye are those by Justus Dahinden (Zurich), Alvar Aalto (Helsinki), Luigi Figini (Milan), Ruy Jervis d'Athouguia (Lisbon), Marcel Breuer (New Canaan, Conn.), Oswaldo Bratke (Sao Paulo, Brazil), and Victor de la Lama (Mexico City).

SAH NEWS

THE ANNUAL MEETING

The annual meeting of the Society of Architectural Historians was held jointly with the College Art Association at Detroit on January 24–27, 1957.

Washington, D. C., was chosen as the place for the 1958 meeting.

Daniel M. C. Hopping, Chairman of the August Tour Committee, announced that the annual August field trip for 1957 will be held on the weekend of August 17–18 in and around Bethlehem, Pa.

THE BOOK AWARD

The Railroad Station by Carroll L. V. Meeks (New Haven: Yale University Press, 1956) received the annual award given by the Society to the book judged by the Committee to be the outstanding contribution to the literature of architectural history by an American author or on an American theme published during the calendar year just ended prior to the January meeting. The winning of the award carried with it the presentation of the Alice Davis Hitchcock medallion.

SAH MONOGRAPH SERIES

At the Directors' Meeting on January 24, 1957, it was voted to accept for publication under the Society's imprint suitable studies for which financing can be found.